ALTUSEN™

Enterprise KVM Solutions by ATEN

Cat 5 High-Density KVM Over the NET™
KH1508i / KH1516i
User Manual

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FCC Information

This is an FCC Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

RoHS

This product is RoHS compliant.

SJ/T 11364-2006

The following contains information that relates to China.

部件名称	有毒有害物质或元素					
	铅	汞	镉	六价铬	多溴联苯	多溴二苯醚
电器部件	●	○	○	○	○	○
机构部件	○	○	○	○	○	○

○: 表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T 11363-2006规定的限量要求之下。

●: 表示符合欧盟的豁免条款，但该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T 11363-2006的限量要求。

×: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T 11363-2006的限量要求。

User Information

Online Registration

Be sure to register your product at our online support center:

International		http://support.aten.com
North America	ATEN TECH	http://www.aten-usa.com/product_registration
	ATEN NJ	http://support.aten.com

Telephone Support

For telephone support, call this number:

International		886-2-8692-6959
North America	ATEN TECH	1-888-999-ATEN
	ATEN NJ	1-732-356-1703

User Notice

All information, documentation, and specifications contained in this manual are subject to change without prior notification by the manufacturer. The manufacturer makes no representations or warranties, either expressed or implied, with respect to the contents hereof and specifically disclaims any warranties as to merchantability or fitness for any particular purpose. Any of the manufacturer's software described in this manual is sold or licensed *as is*. Should the programs prove defective following their purchase, the buyer (and not the manufacturer, its distributor, or its dealer), assumes the entire cost of all necessary servicing, repair and any incidental or consequential damages resulting from any defect in the software.

The manufacturer of this system is not responsible for any radio and/or TV interference caused by unauthorized modifications to this device. It is the responsibility of the user to correct such interference.

The manufacturer is not responsible for any damage incurred in the operation of this system if the correct operational voltage setting was not selected prior to operation. PLEASE VERIFY THAT THE VOLTAGE SETTING IS CORRECT BEFORE USE.

Package Contents

The KH1508i / KH1516i package consists of:

1   KH1508i or KH1516i Cat 5 High-Density KVM Over the NET™ Switch

1   Firmware Upgrade Cable

1   Power Cord

1   Rack Mount Kit

1   Foot Pad Set (4 pcs.)

1   User Manual*

1   Quick Start Guide

Check to make sure that all of the components are present and in good order. If anything is missing, or was damaged in shipping, contact your dealer.

Read this manual thoroughly and follow the installation and operation procedures carefully to prevent any damage to the switch or to any other devices on the KH1508i / KH1516i installation.

* Features may have been added to the KH1508i / KH1516i since this manual was printed. Please visit our website to download the most up-to-date version of the manual.

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The Log File

About This Manual

This User Manual is provided to help you get the most from your KH1508i / KH1516i system. It covers all aspects of installation, configuration and operation. An overview of the information found in the manual is provided below.

Overview

Chapter 1, Introduction, introduces you to the KH1508i / KH1516i system. Its purpose, features and benefits are presented, and its front and back panel components are described.

Chapter 2, Hardware Setup, describes how to set up your installation. The necessary steps – from a basic single stage hookup to a complete 16 switch daisy chained operation are provided.

Chapter 3, Basic Operation, explains the fundamental concepts involved in operating the KH1508i / KH1516i.

Chapter 4, Local Console Operation, describes the concepts and procedures used to operate the KH1508i / KH1516i from a locally connected KVM console.

Chapter 5, Browser Login, explains how to log into the KH1508i / KH1516i with your browser, and explains the functions of the icons and buttons on the KH1508i / KH1516i web page.

Chapter 6, Administration and Configuration, describes how to administer the KH1508i / KH1516i after logging in from a browser.

Chapter 7, The User Interface, explains how to connect to the KH1508i / KH1516i with the software, and describes how to use the OSD to access and control the computers connected to the switch.

Chapter 8, The Log File, shows how to use the log file utility to view all the events that take place on the KH1508i / KH1516i.

Chapter 9, The Log Server, explains how to install and configure the Log Server.

Chapter 10, AP Operation, describes how to operate the KH1508i / KH1516i using Windows and Java Client application programs, rather than with the browser method.

Chapter 11, Keyboard Emulation, provides tables that list the PC to Mac and PC to Sun keyboard emulation mappings.

An Appendix, provides specifications and other technical information regarding the KH1508i / KH1516i.

Conventions

This manual uses the following conventions:

Monospaced	Indicates text that you should key in.
[ ]	Indicates keys you should press. For example, [Enter] means to press the **Enter** key. If keys need to be chorded, they appear together in the same bracket with a plus sign between them: [Ctrl+Alt].
1.	Numbered lists represent procedures with sequential steps.
♦	Bullet lists provide information, but do not involve sequential steps.
→	Indicates selecting the option (on a menu or dialog box, for example), that comes next. For example, Start → Run means to open the *Start* menu, and then select *Run*.
⚠	Indicates critical information.

Product Information

For information about all ALTUSEN products and how they can help you connect without limits, visit ALTUSEN on the Web or contact an ALTUSEN Authorized Reseller. Visit ALTUSEN on the Web for a list of locations and telephone numbers

◆ International – **http://www.aten.com**

◆ North America – **http://www.aten-usa.com**

Chapter 1
Introduction

Overview

The KH1508i / KH1516i KVM Switches are control units that allow access to multiple computers from a single KVM (keyboard, monitor, and mouse) console.

A single KH1508i / KH1516i can control up to 8 / 16 computers. As many as 15 additional KH1508 / KH1516 switches can be daisy chained from the original unit, so that up to 256 computers can all be controlled from the original KVM console.

Note: Aten ACS1208 / ACS1216 switches can also be installed on a KH1508i / KH1516i daisy chain.

Since the KH1508i / KH1516i uses TCP/IP for its communications protocol, it can be accessed from any computer on the Net - whether that computer is located down the hall, down the street, or half-way around the world.
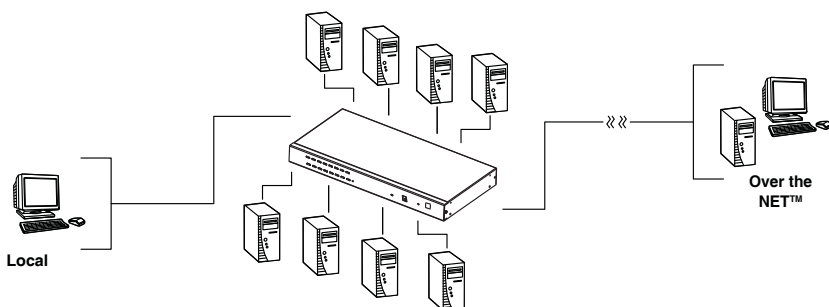
In addition to TCP/IP connectivity, the KH1508i / KH1516i provides KVM ports for a locally attached PS/2 console – allowing access and control from the data center as well as over the Net. The switches utilize a single shared bus implementation – although they support local and remote login at the same time, they do not support independent operation. If a local user logs in while a remote user has already opened a session, the local user sees the same screen that the remote user is working on.

For local access, the KH1508i / KH1516i supports resolutions of up to 1600 x 1200, as well as 1280 x 1024 @ 75Hz for an extended distance of up to 40 m. For remote access, the switches support up to 1280 x 1024 @ 75Hz.

The switches feature RJ-45 connectors and CAT 5 cable to link to the computers. Utilizing PS/2, USB, and serial KVM Adapter Cables for the final linkup, the KH1508i / KH1516i permits any combination of PCs, Macs, Sun computers, and serial devices to coexist on the installation. Use of the adapter cables dramatically reduces cable clutter, and makes reconfiguring the installation easy and convenient.

A custom ASIC (patent pending) provides an auto-sensing function that recognizes the position of each station on the chain, eliminating the need to manually set the position with DIP switches. A seven segment front panel LED displays each Station's position for easy identification.

The KH1508i / KH1516i has been designed to work seamlessly with the ALTUSEN CC1000 Control Center Over the NET™ for ease of access and administration. It also allows the IP address configuration to be easily configured from the local console OSD.

Your KH1508i / KH1516i investment is protected by a firmware upgrade utility. You can stay current with the latest improvements in functionality by downloading firmware update files from our website, and using the utility to quickly and conveniently install them.

Setting up the KH1508i / KH1516i is fast and easy; plugging cables into their appropriate ports is all that is entailed. Because the KH1508i / KH1516i intercepts keyboard and mouse input directly, there is no software to configure; no need to get involved in complex installation routines; no need to be concerned with incompatibility problems.

Access to any computer on the installation is easily accomplished--either by pressing front panel port selection switches; entering hotkey combinations from the keyboard; or by means of a powerful menu driven OSD (On Screen Display) system. A convenient Auto Scan function also permits automatic scanning and one-by-one monitoring of the activities of selected computers.

There is no better way to save time and money than with a KH1508i / KH1516i installation. By allowing a single console to manage up to 256 computers, a KH1508i / KH1516i installation: (1) eliminates the expense of having to purchase a separate keyboard, monitor, and mouse for each; (2) saves all the space those extra components would take up; (3) saves on energy costs; and (4) eliminates the inconvenience and wasted effort involved in constantly moving from one computer to another.

Features

- A single console controls up to 8 (KH1508i) or 16 (KH1516i) computers

- Dedicated chain ports - daisy chain up to 15 additional units - control up to 256 computers from a single console

- Extends the distance between computers and switch - up to 30m for resolutions of 1600 x 1200 @ 60Hz; up to 40 m for resolutions of 1280 x 1024 @ 75Hz

- Custom ASIC (patent pending) auto-senses station's position on daisy chained installations - no need for manual DIP switch setting - front panel LED indicates station's position – port names automatically reconfigured in the OSD when the station sequence changes

- Multiplatform support: PC, Mac, Sun and terminal-based systems

- Remote access via LAN, WAN, or the Internet – control your installation from down the hall, down the street, or half-way around the world – supports 10Base-T, 100Base-T, TCP/IP, HTTP

- Allows the creation of up to 64 user accounts

- Advanced security – password protection and advanced encryption technologies

- Windows and Java-based client software – Java client provides support for most major operating platforms

- No software required – convenient computer selection via port selection switches, hotkeys and intuitive On Screen Display (OSD) menus

- Auto Scan feature for monitoring user-selected computers

- Hot Pluggable - add or remove switches/computers without having to power down the switches

- Two level logout - Manual and Timed

- Upgradeable firmware

- PS/2 keyboard and mouse emulation – computers boot even when the console focus is elsewhere

- Superior video quality – supports resolutions up to 1600 x 1200

- Rack Mountable in 19" System Rack (1U)

Requirements

General

- For best results, we recommend that the computers used to access the KH1508i / KH1516i have at least a P III 1 GHz processor, and that their screen resolution is set to 1024 x 768

- For best results, we recommend an Internet connection speed of at least 128 kbps

- Browsers must support 128 bit data encryption

- To run the Windows client, you must have DirectX 8.0 or higher installed

- To run the Java client, you must have Sun's JRE 6 update 3or higher installed

- To run the Log Server, you must have the Microsoft Jet OLEDB 4.0 (or higher) driver installed

Console

- A VGA, SVGA, or Multisync monitor capable of the highest resolution that you will be using on any computer in the installation.

- A PS/2 style mouse

- A PS/2 style keyboard

Computers

The following equipment must be installed on the computers that connect to the KH1508i or KH1516i's KVM ports:

- A VGA, SVGA or Multisync port

- A Type A USB port and USB host controller (for USB KVM Adapter Cable Connection, see below)

- 6-pin mini-DIN keyboard and mouse ports (for PS/2 KVM Adapter Cable Connection, see below)

KVM Adapter Cables

- Cat 5 (or higher) cable is required to connect the KH1508i / KH1516i to a KVM Adapter Cable (see *Single Station Installation*, page 12).

- The following KVM Adapter Cables are required for use with the KH1508i / KH1516i:

Function	Module
Connect to devices with PS/2 ports	KA9520
Connect to devices with USB ports	KA9570
Connect to Sun Legacy systems (with 13W3 port)	KA9130
Connect to Sun USB systems	KA9131
Connect to serial based devices	KA9140

Supported Operating Systems

The following operating systems are supported by the KH1508i / KH1516i:

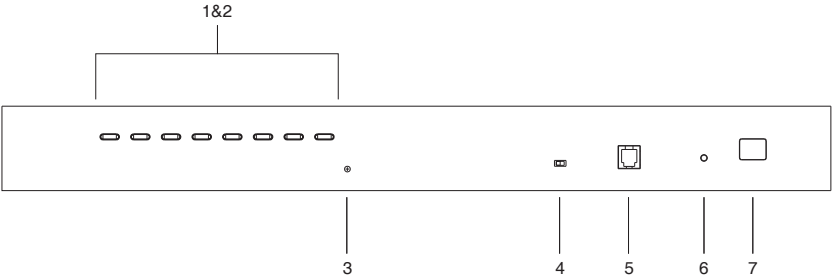| OS		Version
DOS		6.2 and higher
Windows		2000 and higher
Linux	Red Hat	7.1 and higher
	Mandrake/Mandriva	9.0 and higher
	SUSE	8.2 and higher
Free BSD		4.2 and higher
AIX		4.3 and higher
Netware		5.0 and higher
Sun		Solaris 8 and higher
Mac		8.6 and higher

Language Support

- American English
- French
- German
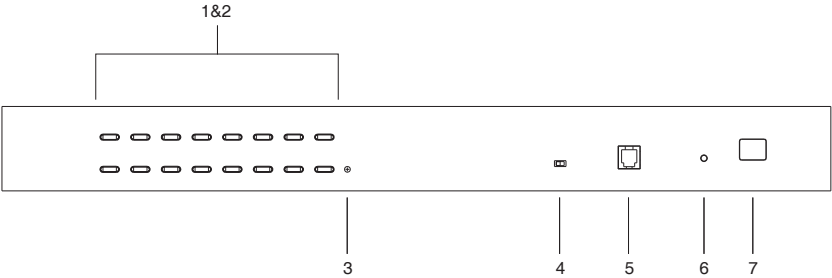- Japanese
- Traditional Chinese
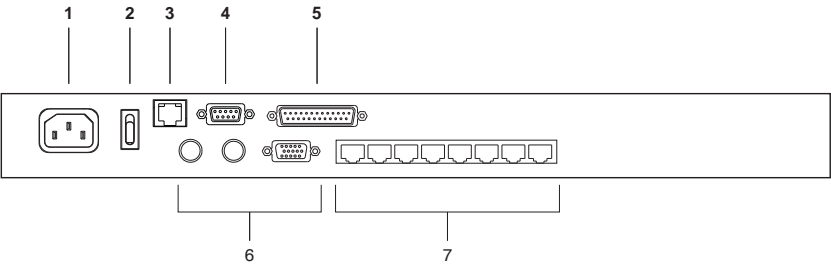- UK English

Components

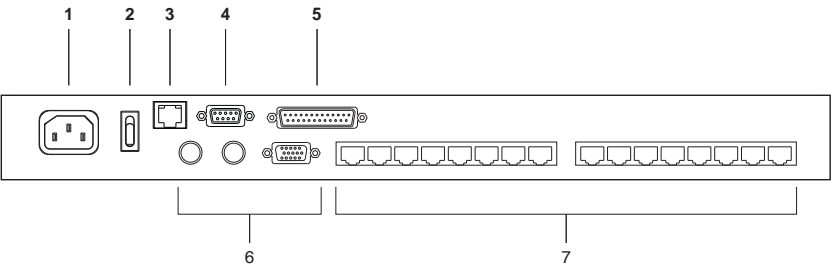## Front View

KH1508i

KH1516i

No.	Compo- nent	Description
1	Port Selection Switches	◆ Press a switch to give the KVM focus to the computer attached to its corresponding port. ◆ Simultaneously pressing Buttons 1 and 2 for 3 seconds performs a Keyboard and Mouse Reset. ◆ Simultaneously pressing Buttons 7 and 8 starts Auto Scan Mode.
2	Port LEDs	The Port LEDs are built into the Port Selection Switches. The left ones are the *On Line* LEDs; the right ones are the *Selected Port* LEDs: ◆ An ONLINE LED lights GREEN to indicate that the computer attached to its corresponding port is up and running. A flashing LED indicates that the Port is being used for cascading to another switch. ◆ A SELECTED LED lights ORANGE to indicate that the computer attached to its corresponding port is the one that has the KVM focus. The LED is steady under normal conditions, but flashes when its port is accessed under Auto Scan Mode.
3	Reset Switch	Pressing this switch in performs a system reset. **Note:** The switch is recessed and must be pushed with a thin object - such as the end of a paper clip, or a ballpoint pen.
4	Firmware Upgrade Recovery Switch	During normal operation and while performing a firmware upgrade, this switch should be in the NORMAL position. If a firmware upgrade operation does not complete successfully, this switch is used to perform a firmware upgrade recovery. **Note:** This is only for performing a local firmware upgrade (see *Firmware Upgrade Recovery*, page 45) for details.
5	Firmware Upgrade Port	The Firmware Upgrade Cable that transfers the firmware upgrade data from the administrator's computer to the KH1508i / KH1516i (see page 40), plugs into this RJ-11 connector. **Note:** This is only for performing a local firmware upgrade (see *Firmware Upgrade Recovery*, page 45) for details.
6	Power LED	Lights to indicate that the KH1508i / KH1516i is powered up and ready to operate.
7	Station ID LED	The KH1508i / KH1516i's Station ID is displayed here. If this is a Single Station installation (see page 12), or the First Station on a Daisy Chained installation (see page 15), the KH1508i / KH1516i has a Station ID of 01. On a Daisy Chained installation, the KH1508i / KH1516i auto-senses its position and displays the Station ID that corresponds to its place in the chain. (see *Port ID Numbering*, page 19, for details).

Rear View

KH1508i

KH1516i

No.	Component	Description
1	Power Socket	The AC power cord plugs in here.
2	Power Switch	This rocker switch powers the unit on and off.
3	LAN Port	The cable that connects the KH1508i / KH1516i to the Internet plugs in here. The LEDs indicate data transmission speed: ORANGE for 10 Mbps; GREEN for 100 Mbps.
4	PON Port	This connector is provided for a Power over the Net™ (PON) unit to plug into. A PON device allows computers attached to the KH1508i / KH1516i to be booted remotely over the net. Contact your dealer for more details.
5	Daisy Chain Port	When Daisy Chaining Units (see *Daisy Chaining*, page 15), the daisy chain cable plugs in here.
6	Local Console Port Section	If this is a Single Station installation, or if this is the First Station of a daisy chained installation, the keyboard, monitor, and mouse that make up the Local Console plug in here.
7	KVM Port Section	The Cat 5 cables that link to the KVM Adapter Cables (which link to the computers) plug in here.

Chapter 2
Hardware Setup

Overview

For convenience and flexibility that allows mixing the PS/2, USB, and serial device interfaces, as well as multiple platforms, the KH1508i / KH1516i's design utilizes KVM Adapter Cables (CPU Modules), that serve as intermediaries between the switch and the connected devices (refer to the installation diagram on page 13).

A separate KVM Adapter Cable is required for each computer or device connection. See *KVM Adapter Cables*, page 5 for the model numbers.

Before You Begin

1. Important safety information regarding the placement of this device is provided on page 137. Please review it before proceeding.

2. Make sure that power to all the devices you will be connecting up have been turned off. You must unplug the power cords of any computers that have the Keyboard Power On function.

Stacking and Rack Mounting

The KH1508i / KH1516i can be stacked on the desktop or rack mounted at the front or rear of the rack. The following sections take you through the procedures for each method.

Stacking

The KH1508i / KH1516i can be placed on any appropriate level surface that can safely support its weight plus the weight of its attached cables. To place the KH1508i / KH1516i, or to stack units if you are daisy chaining them, remove the backing material from the bottom of the rubber feet that came with this package, and stick them onto the switch's bottom panel at the corners, as shown in the diagram, below:
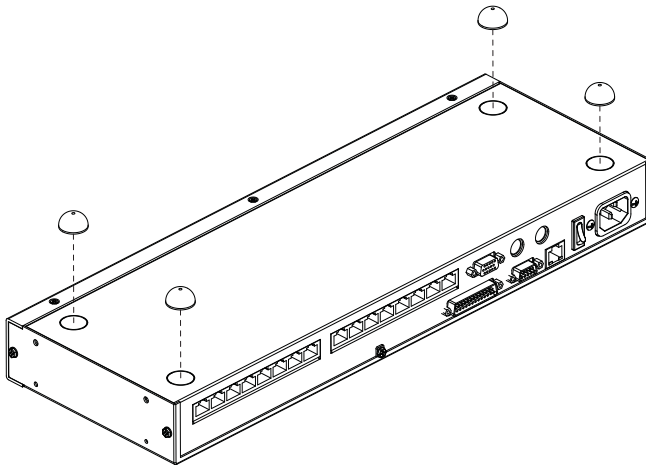
Note: To ensure adequate ventilation, allow at least 5.1 cm on each side, and 12.7cm at the back for power cord and cable clearance.

Rack Mounting

The KH1508i / KH1516i can be mounted in a 19" (1U) racks. The mounting brackets can screw into either the front or the back of the unit so that it can attach to the front or the back of the rack. To rack mount the unit:

1. Remove the screws at the front or the rear, as shown in the diagram below.

Phillips head hex
M3 x 6

Phillips head hex
M3 x 6
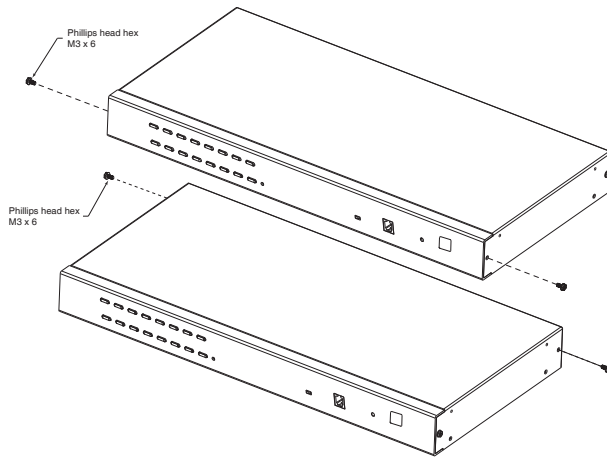
2. Screw the mounting brackets into the sides of the unit at the front or the rear, as shown in the diagram below.

Phillips head hex
M3 x 8

Phillips head hex
M3 x 8
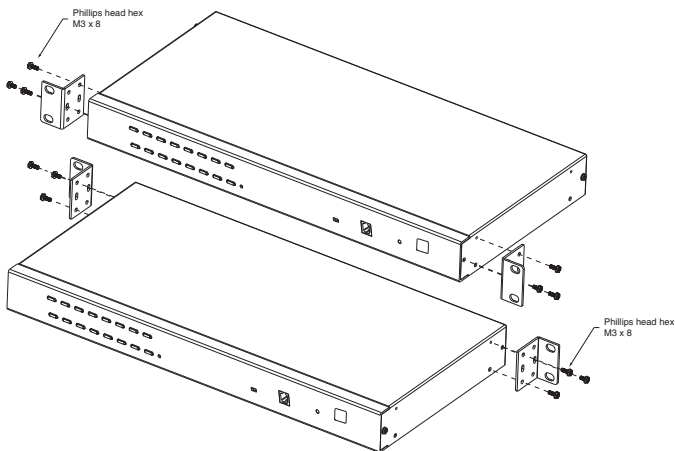
3. Slide the unit into the front or rear of the rack and secure it to the rack.

Single Station Installation

In a Single Stage installation, there are no additional KVM switches daisy chained down from the KH1508i / KH1516i. To set up a single stage installation, refer to the installation diagrams starting on page 13 (the numbers in the diagram correspond with the numbers of the instruction steps), and do the following:

1. Plug your Local Console's keyboard, monitor, and mouse into the unit's Console Ports. Each port is color coded and marked with an appropriate icon to identify itself.

   Note: The KH1508i / KH1516i does not support distances that exceed 20m between itself and the local monitor.

2. Use Cat. 5 cable to connect any available KVM port to a KVM Adapter Cable that is appropriate for the computer you are installing (see *KVM Adapter Cables*, page 5 for details).

   Note: The KH1508i / KH1516i does not support distances that exceed 40m between itself and the KVM Adapter Cable.

3. Connect the KVM Adapter Cable to the computer.

   Plug the connectors on the KVM Adapter Cable into the appropriate ports of the computer you are installing. (See *KVM Adapter Cable Installation Diagrams*, page 14 for connection examples.)

4. Plug the LAN or WAN cable into the KH1508i / KH1516i's LAN port.

5. Plug the female end of the power cord into the KH1508i / KH1516i's Power Socket; plug the male end into an AC power source.

6. Turn on the power to the KH1508i / KH1516i.

After the KH1508i / KH1516i is powered up, you can turn on the computers.

Single Stage Installation Diagram

KVM Adapter Cable Installation Diagrams

KA9520

KA9170

KA9570

KA9140

KA9130
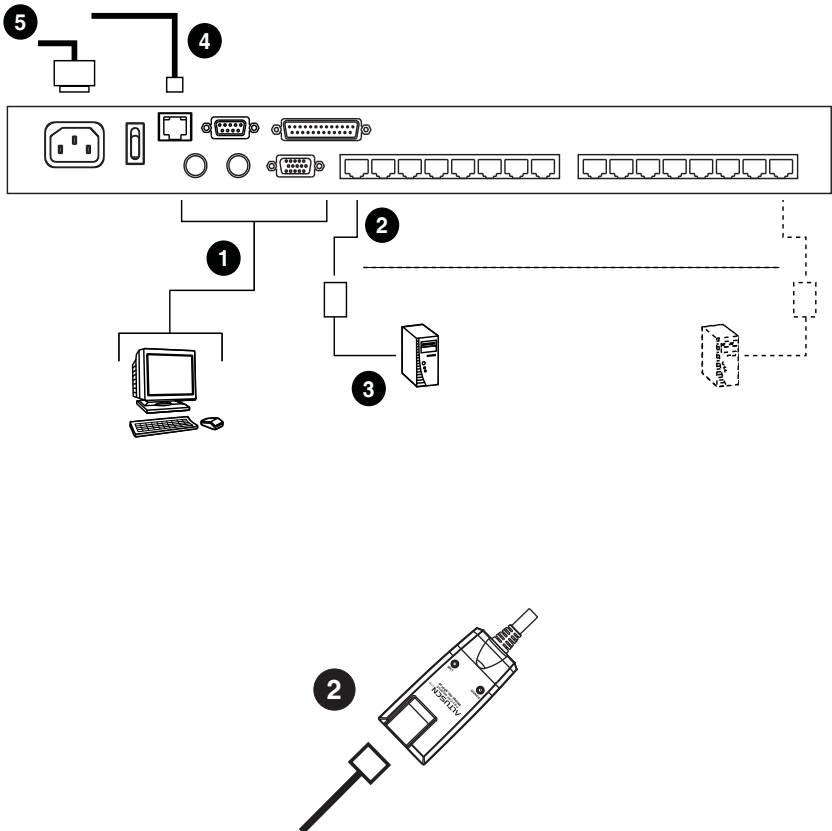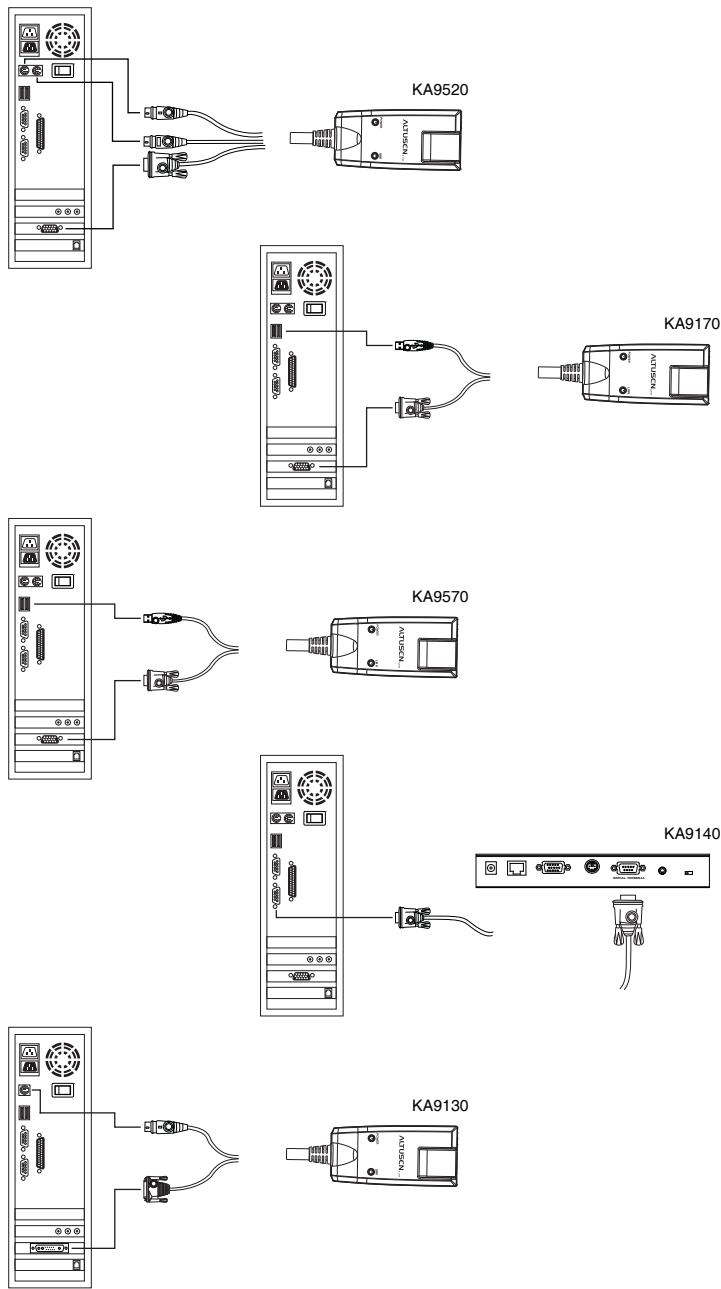
Daisy Chaining

Up to 15 additional KH1508 / KH1516 KVM switches can be daisy chained down from the KH1508i or KH1516i. As many as 256 computers can be controlled from a single console in a complete installation.

Note: Aten ACS1208 / ACS1216 switches can also be installed on a KH1508i / KH1516i daisy chain.

To set up a daisy chained installation, do the following:

1. Use a daisy chain cable set to connect the *Chain Out* port of the parent unit to the *Chain In* port of the child unit (First Station Out to Second Station In, Second Station Out to Third Station In, etc.).

   Note: 1. The KH1508i / KH1516i doesn't have a *Chain In* port since it is the highest level parent – it only has a *Chain Out* port.

   2. Daisy chain cable sets require a separate purchase – see your dealer for details.

   3. The KH1508i / KH1516i does not support distances that exceed 100m between the first station and the last station.

2. Use Cat. 5 cable to connect any available KVM port to a KVM Adapter Cable that is appropriate for the computer you are installing (see *KVM Adapter Cables*, page 5 for details).

   **Note:** The switches do not support distances that exceed 40 m between themselves and the KVM Adapter Cable.

3. Connect the KVM Adapter Cable to the computer. Refer to the installation diagram on the previous page for details.

4. Use the power cord supplied with this package to connect the KVM switch to an AC power source.

5. Repeat steps 1–4 for any other switches you want to add to the chain.

6. Power up the installation according to the following procedure:

a) Power up the First Station. Wait for the unit to ascertain its Station ID and display it on the Station ID LED. (The Station ID for the First Stage unit is 01, the ID for the Second Stage unit is 02, the ID for the Third Stage unit is 03, etc.)

b) Power on each station in turn (Second Station, then Third Station, etc.). In each case, wait for the Station ID to be ascertained and displayed before powering on the next station.

c) After all the Stations are up, power on the computers.

Daisy Chain Installation Diagram
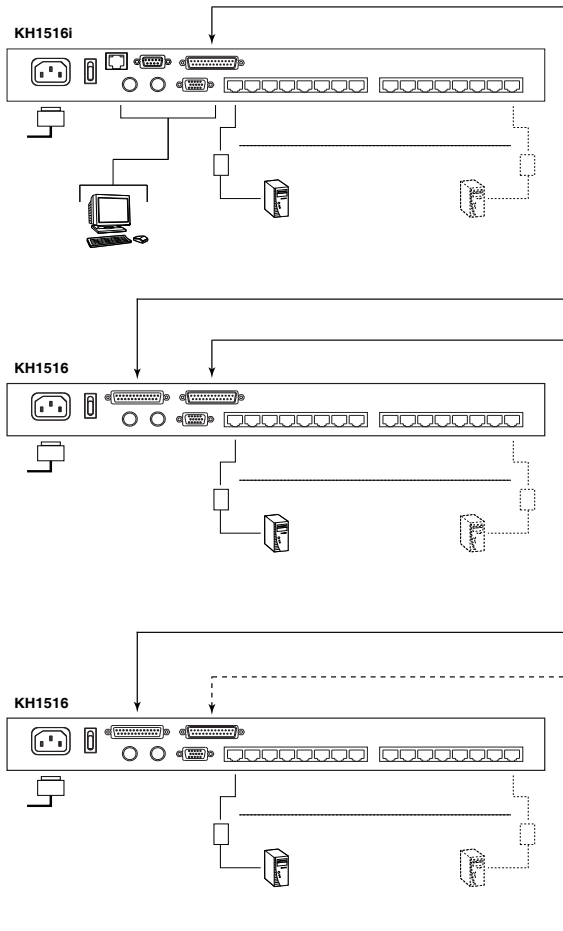
Chapter 3
Basic Operation

Port Selection

KH1508i / KH1516i installations provide three methods to obtain instant access to any computer in your installation: Manual, OSD, and *Hotkey*.

Manual

For manual port selection, simply press the Port Switch that corresponds to the device you wish to access.

OSD

OSD (On Screen Display), provides a menu driven interface to the computer switching procedure. The KH1508i / KH1516i provides two OSD systems: A text-based OSD when you log in from a local console; and a graphical OSD when you log in remotely over the internet. Local console OSD operation is discussed in the next chapter; graphical OSD operation is discussed in Chapter 7 for Windows and Java logins.

Keyboard Hotkeys

Hotkeys allow you to conveniently provide KVM focus to a particular computer from the local console keyboard, instead of having to manually select them by pressing Port Selection switches. See *Keyboard Port Operation*, page 34, for details.

Hot Plugging

The KH1508i / KH1516i supports hot plugging – components can be removed and added back into the installation by unplugging and replugging their cables from their ports without the need to shut the unit down. In order for hot plugging to work properly, however, the procedures described below must be followed.

Hot Plugging Stations

You can switch station positions by simply unplugging from the old parent and plugging into a new one. After you do, in order for the OSD menus to correspond to the change, you must reset the OSD. See *RESET STATION IDS*, page 29, for details.

Hot Plugging KVM Ports

After switching KVM ports, in order for the OSD menus to correspond to the change, you must manually reconfigure the OSD information for the new Port information. See *F3 SET*, page 26, and the Port Setting selections under the *F4 ADM* function, page 29, for details.

Note: If the computer's Operating System doesn't support hot plugging, this function may not work properly.

Hot Plugging Console Ports:

Keyboard, monitor, and mouse can all be hot plugged. When hot plugging the mouse:

◆ You may unplug the mouse and plug it back in again (to reset the mouse, for example), as long as you use the *same* mouse.

◆ If you plug in a different mouse, all the stations and all the computers on the installation must be shut down for 10 seconds, then restarted following the Power Up Sequence described under Step 6 on page 16.)

Note: If, after hot plugging (or at any other time), there is no response to keyboard and/or mouse input, perform a Keyboard and Mouse Reset by pressing in the Reset switch (see page 7).

Powering Off and Restarting

If it becomes necessary to power off the KH1508i / KH1516i, or if the switch loses power and needs to be restarted, before starting it back up you must follow these procedures:

1. Shut down all the computers that are attached to it.

   Note: You must unplug the power cords of any computers that have the Keyboard Power On function.

2. Wait 10 seconds then power it back on. If you have shut down more than one station, power up the highest station first and work your way down to the lowest one. Wait for each station to display its Station ID on the front panel LED before powering on the next one.

3. After the station(s) is (are) up, power the computers back on.

Port ID Numbering

Each computer on the installation is assigned a unique Port ID. The Port ID is a one or two segment number that is determined by the Stage Level and KVM Port number of the KVM switch that the computer is connected to.

The first segment represents the KVM Port number of the First Stage unit; the second segment represents the KVM Port number of the Second Stage unit.

A computer attached to a First Stage unit has a one segment Port ID (from 1-16) that corresponds to the KVM Port number that it is connected to.

A computer attached to a Second Stage unit has a two segment Port ID:

◆ The second segment (from 1-16), represents the KVM Port number on the Second Stage unit that the computer is connected to. The first segment (from 1-16) represents the KVM Port number on the First Stage unit that the Second Stage unit links back to.

◆ For example, a Port ID of 12 - 3 refers to a computer that is connected to KVM Port 3 of a Second Stage unit that links back to KVM Port 12 of the First Stage unit.

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Overview

When setting up your KH1508i / KH1516i installation for the first time, we recommend doing it from the local console. Local console operation offers a menu driven On Screen Display (OSD) to handle computer control and switching operations.

All procedures start from the OSD Main Screen. To pop up the Main Screen, tap **[Scroll Lock]** twice.

Note: [Scroll Lock] is the default OSD hotkey. You can optionally change the Hotkey to the Ctrl key (see *OSD HOTKEY*, page 26).

The login screen appears:

Enter a valid Username and password to continue.

Note: 1. The default username is *administrator*; the default password is *password*. The first time you log in, you must use these defaults. For security purposes, we strongly recommend that you change the default password to something unique.

    2. Usernames and passwords cannot be managed from the local console. User management is handled via remote administration. See *User Management*, page 65 for details.

The OSD Main Screen

After you successfully log in, a screen similar to the one below appears:

Note: 1. The screen depicts the Administrator's Main Screen. The User Main Screen does not show the **F4** or F6 function since it is reserved for the Administrator and can't be accessed by ordinary Users.

2. The OSD always starts in *List* view, with the highlight bar at the same position it was in the last time it was closed.

3. Only the ports that have been set accessible by the Administrator for the currently logged in User are visible (see *Port Access*, page 67, for details).

OSD Navigation

- To dismiss the menu, and deactivate the OSD, Click the **X** at the upper right corner of the OSD Window; or press **[Esc]**.

- To Logout, Click **F8** or the $_Z Z^Z$ symbol at the top of the Main Screen, or press **[F8]**.

- The OSD uses a tree view. To see the ports for a particular station, click the plus sign [+] in front of the Station Number or move the Highlight Bar to the station then press [Enter]. The Port Number list drops down. To dismiss the list, click the circle symbol [**o**] in front of the Station Number.

- To move up or down through the list one line at a time, Click the Up and Down Triangle symbols (▲▼) or use the Up and Down Arrow Keys. If there are more list entries than there is room for on the Main Screen, the screen will scroll.

- To move up or down through the list one screen at a time, Click the Up and Down Arrow symbols (↑↓), or use the [Pg Up] and [Pg Dn] keys. If there are more list entries than there is room for on the Main Screen, the screen will scroll.

- To bring the KVM focus to a port, Double Click it, or move the Highlight Bar to it then press [Enter].

- After executing any action, you automatically go back to the menu one level above.

OSD Main Screen Headings

Heading	Explanation
SN-PN	This column lists the Port ID numbers (Station Number - Port Number) for all the Computer Ports on the installation. The simplest method to access a particular computer is move the Highlight Bar to the port entry, then press **Enter**.
QV	If a port has selected for Quick View scanning (see *SET QUICK VIEW PORTS*, page 28), an arrowhead displays in this column to indicate so.
☼	The computers that are powered on and are On Line have a Sun symbol in this column to indicate so.
NAME	If a port has been given a name (see *EDIT PORT NAMES*, page 29), its name appears in this column.

OSD Functions

OSD functions are used to configure and control the OSD. For example, rapidly switching to any port; scanning only selected ports; limiting the list of ports you wish to view; designating a port as a Quick View Port; managing port names; or making OSD setting adjustments.

To access an OSD function:

1. Either Click a Function Key field at the top of the Main Screen, or press a Function Key on the keyboard.

2. In the Submenus that appear make a choice by either double clicking it, or by moving the Highlight Bar to it, and pressing **[Enter]**.

3. Press **[Esc]** to return to the previous menu level.

F1 GOTO

GOTO allows you to switch directly to a port either by keying in the port's *Name*, or its *Port ID*.

◆ To use the Name method, key in **1**; key in the port's Name; then press **[Enter]**.

◆ To use the Port ID method, key in **2**; key in the *Port ID*; then press **[Enter]**.

Note: 1. You can key in a partial Name or Port ID. In that case, the screen will show all the computers that the User has *View* rights to, that match the Name or Port ID pattern, regardless of the current List settings (see *F2 LIST*, page 25, for details).

2. Port access rights are assigned via the remote OSD. See *Port Access*, page 67, for details.

To return to the OSD Main Screen without making a choice, press **[Esc]**.

F2 LIST

This function lets you broaden or narrow the scope of which ports the OSD displays (lists) on the Main OSD Screen. Many of the OSD functions only operate on the computers that are listed on the Main OSD Screen. The submenu choices and their meanings are given in the table below:

Choice	Meaning
ALL	Lists all of the ports on the installation.
POWERED ON	Lists only the ports that have their attached computers Powered On.
QVIEW	Lists only the ports that have been selected as Quick View Ports (see *SET QUICK VIEW PORTS*, page 28).
QVIEW + POWERED ON	Lists only the ports that have been selected as Quick View Ports (see *SET QUICK VIEW PORTS*, page 28, and that have their attached computers Powered On.

Move the Highlight Bar to the choice you want, then press **[Enter]**. An icon appears before the choice to indicate that it is the currently selected one.

F3 SET

This function allows the Administrator and each User to set up their own working environment. A separate profile for each is stored by the OSD and is activated according to the *Username* that is provided during Login.

To change a setting:

1. Move the highlight bar to it, then press **[Enter]**.

2. After you select an item, a submenu with further choices appears. To make a selection, move the Highlight Bar to it, then press **[Enter]**. An icon appears before the selected choice to indicate which one it is. The settings are explained in the following table:

Setting	Function
OSD HOTKEY	Selects which Hotkey activates the OSD function:
	[Scroll Lock] [Scroll Lock] or **[Ctrl] [Ctrl]**.
	Since the Ctrl key combination may conflict with programs running on the computers, the default is the Scroll Lock combination.
PORT ID DISPLAY POSITION	Allows you to position where the Port ID appears on the monitor. The default is the upper left corner, but you can have it appear anywhere on the screen.
	Use the Arrow Keys plus Pg Up, Pg Dn, Home, End, and 5 (on the numeric keypad with Num Lock off), to position the Port ID display, then press **[Enter]** to lock the position and return to the Set submenu.
PORT ID DISPLAY DURATION	Determines how long a Port ID displays on the monitor after a port change has taken place. The choices are:
	User Defined - which lets you select the amount of time (from 0–255 sec.); and
	Always On - which displays the Port ID at all times.
	If you select *User Defined*, key in the number of seconds, then press **[Enter]**.
	The default is 5 Seconds. A setting of 0 (zero) disables this function.
PORT ID DISPLAY MODE	Selects how the Port ID is displayed: the Port Number alone (**PORT NUMBER**); the Port Name alone (**PORT NAME**); or the Port Number plus the Port Name (**PORT NUMBER + PORT NAME**). The default is PORT NUMBER + PORT NAME).

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Setting	Function
SCAN DURATION	Determines how long the focus dwells on each port as it cycles through the selected ports in Auto Scan Mode (see *F7 SCAN*, page 32). Key in a value from 0–255 seconds, then press **[Enter]**. Default is 10 seconds; a setting of 0 disables the Scan function.
SCAN/SKIP MODE	Selects which computers will be accessed under Skip Mode (see *F5 SKP*, page 31), and Auto Scan Mode (see *F7 SCAN*, page 32). Choices are:
	ALL - All the Ports which have been set Accessible (see *Port Access*, page 67);
	POWERED ON - Only those Ports which have been set Accessible and are Powered On;
	QUICK VIEW - Only those Ports which have been set Accessible and have been selected as Quick View Ports (see *SET QUICK VIEW PORTS*, page 28);
	QUICK VIEW + POWERED ON - Only those Ports which have been set Accessible and have been selected as Quick View Ports and are Powered On.
	The default is **ALL**.
SCREEN BLANKER	If there is no input from the console for the amount of time set with this function, the screen is blanked. Key in a value from 0–30 minutes, then press **[Enter]**. A setting of 0 disables this function. The default is 0 (disabled).
HOTKEY COMMAND MODE	Enables / Disables the Hotkey Command function in case a conflict with programs running on the computers occurs. The default is ON.
HOTKEY	This setting selects the Hotkey invocation keys (see *Keyboard Port Operation*, page 34). Choices are:
	[Num Lock] + [–] or **[Ctrl] + [F12]**
	The default is [Num Lock] + [–].
SET LOGOUT TIMEOUT	If there is no input from the console for the amount of time set with this function, the Operator is automatically logged out. A login is necessary before the console can be used again.
	This enables other Operators to gain access to the computers when the original Operator is no longer accessing them, but has forgotten to log out. To set the timeout value, key in a number from 0–180 minutes, then press [Enter]. If the number is 0 (zero), this function is disabled. Default is 0 (disabled).

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Setting	Function
ACTIVATE BEEPER	Choices are **Y** (for Yes), or **N** (for No). When activated, the beeper sounds whenever a Port is changed, when activating the Auto Scan function (see *F7 SCAN*, page 32), or an invalid entry is made on an OSD menu. The default is Y (activated).
SET QUICK VIEW PORTS	This function lets the Administrator select which Ports to include as Quick View ports. ◆ To select/deselect a port as a Quick View Port, use the Navigation Keys to move the highlight bar to it, then press the [Spacebar]. ◆ When a port has been selected as a Quick View Port, an arrowhead displays in the QV column of the LIST on the Main Screen to indicate so. When a port is deselected, the arrowhead disappears. ◆ If one of the Quick View options is chosen for the LIST view (see *F2 LIST*, page 25), only a Port that has been selected here will display on the List. ◆ If one of the Quick View options is chosen for Auto Scanning (see *SCAN/SKIP MODE*, page 27), only a Port that has been selected here will be Auto Scanned. The default is for no ports to be selected.

F4 ADM

F4 is an Administrator only function. It allows the Administrator to configure and control the overall operation of the OSD. To change a setting use the Up and Down Arrow Keys to move the highlight bar to it then press **[Enter]**.

After you select an item, a submenu with further choices appears. Move the Highlight Bar to the choice you want, then press **[Enter]**. An icon appears before the selected choice so that you know which one it is. The settings are explained in the following table:

Setting	Function
EDIT PORT NAMES	To help remember which computer is attached to a particular port, every port can be given a name. This function allows the Administrator to create, modify, or delete port names. To Edit a port name:
	1. Click the port you want, or use the Navigation Keys to move the highlight bar to it, then press [Enter].
	2. Key in the new Port Name, or modify/delete the old one. The maximum number of characters allowed for the Port Name is 12. Legal characters include:
	◆ All alpha characters: **A–Z***
	◆ All numeric characters: **0–9**
	◆ **-** and **Space**
	*Case does not matter; the OSD displays the Port Name in all capitals no matter how they were keyed in.
	3. When you have finished editing, press [Enter] to have the change take effect. To abort the change, press Esc.
RESTORE DEFAULT VALUES	This function is used to undo all changes and return the setup to the original factory default settings (see *OSD Factory Default Settings*, page 152) – except for the *Names* settings that were assigned to the Ports, which are saved.
CLEAR THE NAME LIST	This function is similar to Restore Default Values. The difference is that it also clears the *Names* settings along with undoing all changes and returning the setup to the original factory default settings.
RESET STATION IDS	If you change the position of one of the Stations in the daisy chain, the OSD settings will no longer correspond to the new situation. This function directs the OSD to rescan the Station positions of the entire installation and updates the OSD so that the OSD Station information corresponds to the new physical layout.
	Note: Only the Station Numbers get updated. Except for the Port Names, all Administrator settings (such as Set Accessible Ports, Set Quick View Ports, etc.), for all of the computers affected by the change, have to be manually redone.

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Setting	Function
SET OPERATING SYSTEM	Specifies the operating platform of the computer attached to each port. For each port, press the [Spacebar] to cycle through the choices (PC, Mac, Sun, and Other). Repeat until all the ports have been set, then press [Esc]. The default is PC. **Note:** If you are installing a Sun or Mac computer, before you run it for the first time you must set the correct operating system for the port it is connected to with this function; otherwise, it will not boot.
SET CAT 5 LENGTH	Lets you specify how long the Cat 5 cable between the port and the KVM adapter cable is. Press **[Spacebar]** to cycle through the cable length settings: **S**: Short – for up to 25 m **M**: Medium – for between 20 and 40 m **L**: Long – for above 35 m An S, M, or L appears next to the port to indicate the choice.
SET KEYBOARD LANGUAGE	Sets the keyboard language layout for the computers attached to each port. Press **[Spacebar]** to cycle through the choices: English (US); English (UK); French; German; Japanese; Korean; Traditional Chinese; and Spanish. The default is English (US).
FIRMWARE UPGRADE	In order to upgrade the KH1508i / KH1516i's firmware (see *KH1508i / KH1516i Mainboard Upgrade*, page 40) you must first enable *Firmware Upgrade Mode* with this setting. When you bring up this menu, the current firmware version levels display. Select **Y** to enable Firmware Upgrade Mode, or **N** to leave this menu without enabling it.
ADAPTER UPGRADE	In order to upgrade an Adapter Cables' firmware (see *Adapter Cable Upgrade*, page 46), you must first enable its Upgrade Mode with this setting. Press **[Spacebar]** to select the KVM Adapter Cable you want to upgrade. When you select a KVM Adapter Cable, its current firmware version levels display. Select **Y** to enable Firmware Upgrade Mode, or **N** to leave this menu without enabling it.

F5 SKP

This function enables you to easily skip backward or forward, switching the console focus from the currently active KVM Port to the previous or next available one.

* The selection of computers to be available for Skip Mode switching is made with the *Scan/Skip Mode* setting under the **F3 SET** function (see page 26).

* When you are in Skip Mode, press:

  ←   To skip from the current port to the previous port in the List.

  →   To skip from the current port to the next port in the List.

  ↑   To skip from the current port to the last port of the previous station in the List.

  ↓   To skip from the current port to the first port of the next station in the List.

Note: When you Skip, you only Skip to the previous or next available computer that is in the *Scan/Skip Mode* selection (see page 27).

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* If a Port has been selected for *Scan/Skip Mode*, when the focus switches to that port a Left/Right Triangle symbol appears before its Port ID Display to indicate so.

* While Skip Mode is in effect, the console will not function normally. You must exit Skip Mode in order to regain control of the console.

* To exit Skip Mode, press the [Spacebar] or [Esc].

F6 IP

This function allows you to select whether to assign the KH1508i / KH1516i's IP address dynamically (DHCP), or to give it a fixed IP address. Press **[Enter]** to toggle between the choices.

If you toggle *DHCP Enable* to Off, specify the IP, Mask, and Gateway in the appropriate fields.

Press **[Esc]** to exit after you have finished with your choice.

F7 SCAN

Pressing **[F7]** invokes Auto Scan Mode. This function allows you to automatically switch among the available computers at regular intervals so that you can monitor their activity without having to take the trouble of switching manually.

- ◆ The selection of computers to be included for Auto Scanning is made with the *Scan/Skip Mode* setting under the **F3 SET** function (see page 26).

- ◆ The amount of time that each Port displays for is set with the *Scan Duration* setting under the **F3 SET** function (see page 26). When you want to stop at a particular location, press the [Spacebar] to stop scanning and exit *Auto Scan Mode*.

- ◆ If the scanning stops on an empty port, or one where the computer is attached but is powered Off, the monitor screen will be blank, and the mouse and keyboard will have no effect. Simply wait - after the *Scan Duration* time is up, the Scan function will move on to the next port.

- ◆ As each computer is accessed, an **S** appears in front of the Port ID display to indicate that it is being accessed under *Auto Scan Mode*.

- ◆ While Auto Scan Mode is in effect, the console will not function normally. You must exit Auto Scan Mode in order to regain control of the console.

- ◆ While you are in Auto Scan Mode, you can pause the scanning in order to keep the focus on a particular computer by pressing **P**. See *Invoking Auto Scan*, page 37, for details.

- ◆ To exit Auto Scan Mode, press **[Spacebar]** or **[Esc]**.

F8 LOUT

Pressing **[F8]** logs you out of OSD control of the computers, and blanks the Console screen. This is different from simply pressing **[Esc]** when you are at the Main Screen to deactivate the OSD. With this function you must log in all over again to regain access to the OSD, whereas with **[Esc]**, all you have to do to reenter the OSD is tap the OSD Hotkey.

Note: 1. When you reenter the OSD after logging out, the screen stays blank except for the OSD Main Screen. You must input your password before you can continue.

2. If you reenter the OSD after logging out, and immediately use [Esc] to deactivate the OSD without having selected a port from the OSD menu, a Null Port message displays on the screen. The OSD Hotkey will bring up the Main OSD Screen.

Keyboard Port Operation

Overview

In addition to the OSD, the KH1508i / KH1516i also supports port control directly from the keyboard with the use of hotkey combinations.

Hotkey port control allows you to provide KVM focus to a particular computer directly from the keyboard. The KH1508i / KH1516i provides the following Hotkey Port Control features:

- Selecting the Active Port
- Auto Scanning
- Skip Mode Switching
- Beeping to indicate a port switch

Invoking Hotkey Mode

All Hotkey operations begin by invoking *Hotkey Mode*. Invoking Hotkey Mode takes three steps:

1. Hold down the **Num Lock** key;

2. Press and release the **minus** key;

3. Release the **Num Lock** key:

   ```
   [Num Lock] + [-];
   ```

Note: The minus key must be released within one half second, otherwise Hotkey invocation is cancelled and it has no effect.

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When Hotkey Mode is active:

- ◆ The Caps Lock, and Scroll Lock LEDs flash in succession to indicate Hotkey Mode is active. They stop flashing and revert to normal status when you exit Hotkey Mode.

- ◆ A Command Line appears on the monitor screen. The command line prompt is the word *Hotkey:* in yellow text on a blue background, and displays the subsequent Hotkey information that you key in.

- ◆ Ordinary keyboard and mouse functions are suspended - only Hotkey compliant keystrokes (described in the sections that follow), can be input.

- ◆ Pressing **[Esc]** exits Hotkey Mode.

Selecting the Active Port

Each Computer Port is assigned a Port ID (see *Port ID Numbering*, page 19). You can directly access any computer on the installation with a Hotkey combination that specifies the Port ID of the Computer Port that the computer is connected to. The steps involved are:

1. Invoke Hotkey Mode (see page 34).

2. Key in the Port ID

   The Port ID numbers display on the Command Line as you key them in. If you make a mistake, use [Backspace] to erase the wrong number.

   Note: 1. Just key in the numbers; do not key in the dash.

   2. If the port you want to switch to is on the current station, you can just key in the port number – you do not need to key in the station number.

3. Press **[Enter]**

   After you press [Enter], the KVM focus switches to the designated computer and you automatically exit Hotkey Mode.

Auto Scanning

Auto Scan automatically switches among all the active Computer Ports that are accessible to the currently logged on User at regular intervals, so that he can monitor their activity automatically. (See *SCAN/SKIP MODE* of the OSD **F3 SET** function, page 26 for information regarding accessible ports).

Setting the Scan Interval

The amount of time Auto Scan dwells on each port is set with the *SCAN DURATION* setting of the OSD **F3 SET** function (see page 26). You can change the scan interval before activating Hotkey Auto Scanning, if you wish, with the following Hotkey combination:

1. Invoke Hotkey Mode (see page 34).

2. Key in **[T] [n]**

   Where [T] is the letter **T**, and [n] is a number from 1-255 that represents the number of seconds for the dwell time.

   The letter **T** and the numbers display on the Command Line as you key them in. If you make a mistake, use **[Backspace]** to erase the wrong number.

3. Press **[Enter]**

   After you press [Enter], you automatically exit Hotkey Mode, and are ready to invoke Auto Scanning.

Invoking Auto Scan

To start Auto Scanning, key in the following Hotkey combination:

1. Invoke Hotkey Mode (see page 34).

2. Press **[A]**.

   After you press **A**, you automatically exit Hotkey Mode, and enter Auto Scan Mode, and Auto Scanning begins.

   ◆ While you are in Auto Scan Mode, you can pause the scanning in order to keep the focus on a particular computer by pressing **P** or clicking with the mouse. During the time that Auto Scanning is paused, the Command Line displays: **Auto Scan: Paused.**

   Pausing when you want to keep the focus on a particular computer is more convenient than Exiting Auto Scan Mode because when you Resume scanning, you start from where you left off. If, on the other hand, you Exited and restarted, Scanning would start over from the very first computer on the installation.

   To resume Auto Scanning, press any key or click with the mouse. Scanning continues from where it left off.

   ◆ While Auto Scan Mode is in effect, ordinary keyboard and mouse functions are suspended - only Auto Scan Mode compliant keystrokes can be input. You must exit Auto Scan Mode in order to regain normal control of the console.

3. To exit Auto Scan Mode press **[Esc]** or **[Spacebar]**. Auto Scanning stops when you exit Auto Scan Mode.

Skip Mode

This feature allows you to switch between computers in order to monitor them manually. You can dwell on a particular port for as long or as little as you like - as opposed to Auto Scanning, which automatically switches after a fixed interval. To invoke Skip Mode, key in the following Hotkey combination:

1. Invoke Hotkey Mode (see page 34).

2. Key in **[Arrow]**

   - Where [Arrow] refers to one of the Arrow keys. After you press [Arrow], you automatically exit Hotkey Mode, and enter Skip Mode where you can switch ports as follows:

←	Skips from the current port to the first accessible port previous to it. (See *SCAN/SKIP MODE*, page 27, for information regarding accessible ports.)
→	Skips from the current port to the next accessible port.
↑	Skips from the current port to the last accessible port of the previous Station.
↓	Skips from the current port to the first accessible port of the next Station.

   - Once you are in Skip Mode, you can keep on skipping by pressing the Arrow keys. You don't have to use the [NumLock] + [-] combination again.
   - While Skip Mode is in effect, ordinary keyboard and mouse functions are suspended - only Skip Mode compliant keystrokes can be input. You must exit Skip Mode in order to regain normal control of the console.

3. To exit Skip Mode, press **[Esc]** or **[Spacebar]**.

Hotkey Beeper Control

The Beeper (see *ACTIVATE BEEPER*, page 28) can be Hotkey toggled On and Off. When the beeper is set to On, the KH1508i / KH1516i beeps when it switches ports. To toggle the Beeper, key in the following Hotkey combination:

1. Invoke Hotkey Mode (see page 34).

2. Press **[B]**

After you press **B**, the Beeper toggles On or Off. The Command Line displays *Beeper On* or *Beeper Off* for one second; then the message disappears and you automatically exit Hotkey Mode.

Hotkey Summary Table

The following table summarizes Hotkey operations on the KH1508i / KH1516i:

[Num Lock] + [-]	[Port ID] [Enter]	Switches access to the computer that corresponds to that Port ID.
	[T] [n] [Enter]	Sets the Auto Scan interval to **n** seconds - where **n** is a number from 0–255.
	[A]	Invokes Auto Scan Mode. When Auto Scan Mode is in effect, [P] pauses Auto Scanning. When Auto Scanning is paused, pressing any key resumes Auto Scanning.
	[←]	Invokes Skip Mode and skips from the current port to the first accessible port previous to it.
	[→]	Invokes Skip Mode and skips from the current port to the next accessible port.
	[↑]	Invokes Skip Mode and skips from the current port to the last accessible port of the previous Station.
	[↓]	Invokes Skip Mode and skips from the current port to the first accessible port of the next Station.
	[B]	Toggles the Beeper On or Off.

Firmware Upgrade

KH1508i / KH1516i Mainboard Upgrade

New firmware upgrade packages are posted on our website as they become available. Check the website regularly to find the latest packages and information relating to them. This chapter explains how to upgrade the KH1508i / KH1516i's mainboard firmware.

Note: When you upgrade the mainboard firmware, you must upgrade the browser firmware to the latest version (if it isn't already at the latest version). Upgrading the browser firmware is described on page 56.

Before You Begin

To prepare for the firmware upgrade, do the following:

1. From a computer that is not part of your KVM installation go to our website and choose the model name that relates to your device to get a list of available firmware upgrade files.

2. Choose the mainboard firmware upgrade file and download it to your computer. It will have a name like **kh1508i-1516i_main_v.xxxx.exe** (where *xxxx* stands for the version number). The higher the number the newer the file.

3. Use the *Firmware Upgrade Cable* (provided with this unit), to connect a COM port on your computer to the *Firmware Upgrade Port* of the KH1508i / KH1516i.
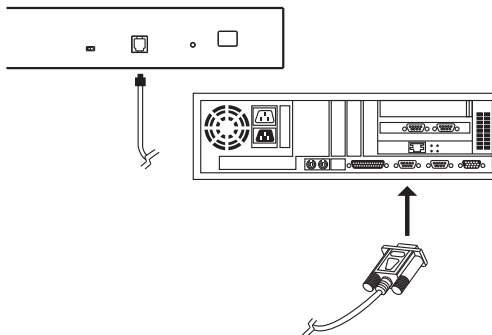
4. Shut down all of the computers - but not the Stations - on your KVM installation.

5. From your KVM switch console, bring up the OSD (see page 21) and select the **F4ADM** function.

6. Scroll down to *FIRMWARE UPGRADE*. Press **[Enter]**, then press **[Y]** to invoke Firmware Upgrade Mode (see page 30) For your reference, the current firmware upgrade version displays on the screen.

Starting the Upgrade

To upgrade your firmware:

1. Run the downloaded Firmware Upgrade Package file - either by double clicking the file icon, or by opening a command line and keying in the full path to it.

   The Firmware Upgrade Utility *Welcome* screen appears:
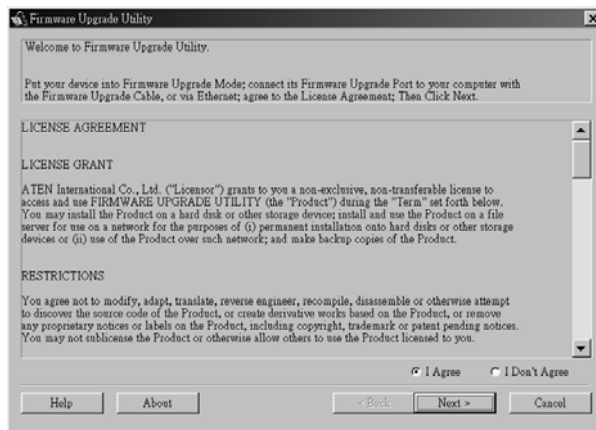
2. Read and *Agree* to the License Agreement (enable the I Agree radio button).

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3. Click **Next** to continue. The Firmware Upgrade Utility main screen appears:
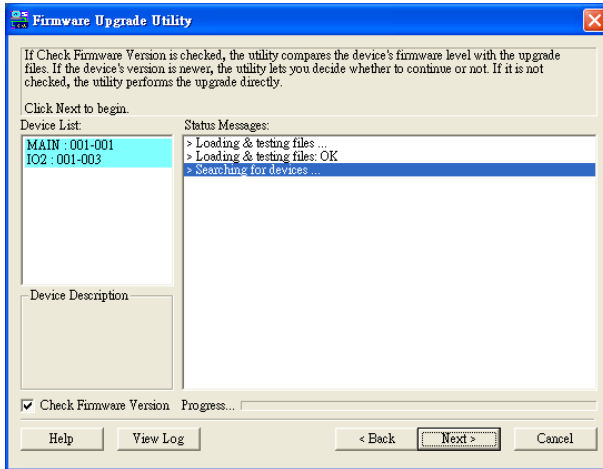
The Utility inspects your installation. All the devices capable of being upgraded by the package are listed in the *Device List* panel.

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4. After you have made your selection(s), Click **Next** to perform the upgrade.

   ◆ If you enabled *Check Firmware Version*, the Utility compares the device's firmware level with that of the upgrade files. If it finds that the device's version is higher than the upgrade version, it brings up a dialog box informing you of the situation and gives you the option to Continue or Cancel:
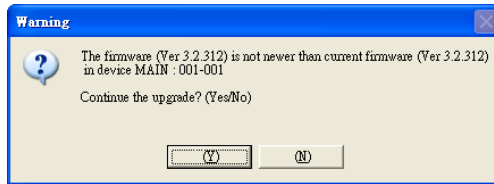
   If you didn't enable *Check Firmware Version*, the Utility installs the upgrade files without checking whether they are a higher level, or not.

   ◆ As the Upgrade proceeds status messages appear in the Status Messages panel, and the progress toward completion is shown on the *Progress* bar.

   ◆ To abort the upgrade procedure before it completes, click **Cancel**.

   If you cancel before completion, a dialog box appears warning you that quitting at this point may cause the device's firmware to be lost, and you are given the option to proceed or abort the cancel operation.

   To recover from a "lost firmware" situation, see *Firmware Upgrade Recovery*, page 45.

Upgrade Succeeded:
After the upgrade has completed, a screen appears to inform you that the procedure was successful:
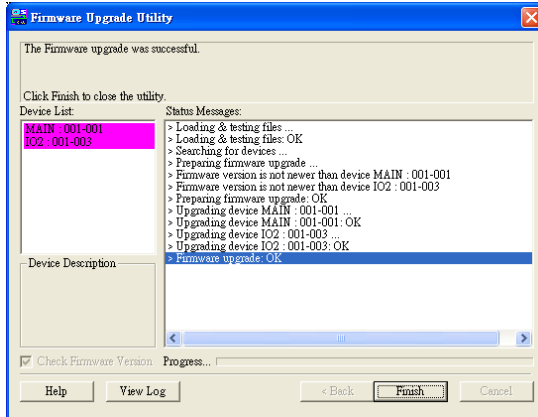
Click **Finish** to close the Firmware Upgrade Utility.

Upgrade Failed:

If the upgrade failed to complete successfully a dialog box appears asking if you want to retry. Click **Yes** to retry. If you Click **No**, the *Upgrade Failed* screen appears:
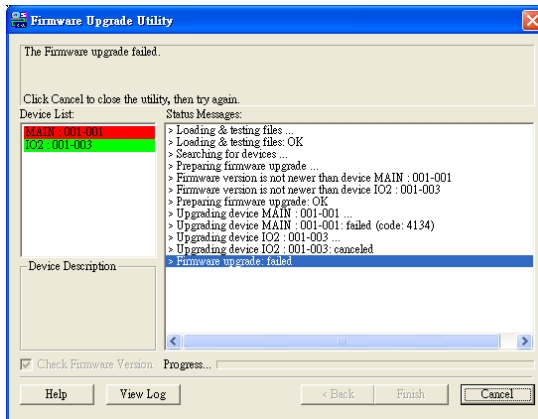
Click **Cancel** to close the Firmware Upgrade Utility. See the next section, *Firmware Upgrade Recovery*, for how to proceed.

Firmware Upgrade Recovery

There are basically four conditions that call for firmware upgrade recovery:

1. When a firmware upgrade procedure is interrupted due to a power failure or loss of network connection.

2. When the unit's firmware becomes corrupted for some reason and you are unable to operate it.

3. When you invoke Firmware Upgrade Mode (see *FIRMWARE UPGRADE*, page 30), but decide not to proceed with the upgrade.

4. When a firmware upgrade procedure fails.

To perform a firmware upgrade recovery, do the following:

1. Slide the *Firmware Upgrade Recovery Switch* (see page 7) to the **Recover** position.

2. Power off and restart the switch according to the instructions given in the *Powering Off and Restarting* section (see page 19).

3. Repeat the upgrade procedure starting with *Starting the Upgrade*, page 41.

4. When the upgrade ends, power off the switch

5. Slide the *Firmware Upgrade Recovery Switch* back to the **Normal** position.

6. Restart the switch according to the instructions given in the *Powering Off and Restarting* section (see page 19).

Note: 1. In condition 1, mentioned above, the IP module may fail and require a special procedure to recover. In that case, see *IP Module Firmware Upgrade Recovery*, page 154, for how to proceed.

    2. If one of the daisy chained units fails to upgrade, unchain it from the installation and perform the recovery and upgrade operation on it independently. After it has been successfully upgraded, plug it back into the chain.

Adapter Cable Upgrade

The firmware for the KA9520, KA9570, and KA9130 KVM Adapter Cables can also be upgraded. Check the web site regularly to find the latest packages and information relating to them:

Before You Begin

To prepare for the firmware upgrade, do the following:

1. From a computer that is not part of your KVM installation go to our Internet support site and choose the model name that relates to your device to get a list of available Firmware Upgrade Packages.

2. Choose the Firmware Upgrade Package you want to install (usually the most recent), and download it to your computer.

   > **Note:** The upgrade files for the three adapter cables aren't packaged separately. A single upgrade package provides the upgrade files for all of them.

3. Use the *Firmware Upgrade Cable* (provided with this unit), to connect a COM port on your computer to the *Firmware Upgrade Port* of the KH1508i / KH1516i.

4. From your KVM switch console, bring up the OSD (see page 21) and select the **F4ADM** function.

5. Scroll down to *ADAPTER UPGRADE*. Press **[Enter]**.

6. In the screen that comes up, press **[Y]** to invoke Upgrade Mode.

   > **Note:** 1. A message appears reminding you to connect an adapter cable. The upgrade takes place via the Cat 5 cable that connects the adapter cable to the KVM switch, however, so there is no need to connect a separate firmware upgrade cable. If all the adapter cables you want to upgrade have already been connected to the switch, simply ignore the message.
   >
   > 2. All the connected adapter cables get upgraded during a single upgrade session.

Starting the Upgrade:

To upgrade your firmware:

1. Run the downloaded Firmware Upgrade Package file - either by double clicking the file icon, or by opening a command line and keying in the full path to it.

   The Firmware Upgrade Utility *Welcome* screen appears (see page 41).

2. Read and *Agree* to the License Agreement (enable the I Agree radio button), then Click **Next** to continue. The Firmware Upgrade Utility main screen appears:
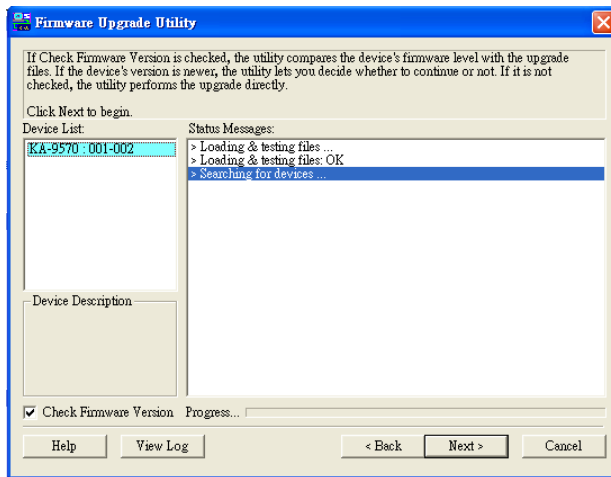
   The Utility inspects your installation. All the devices capable of being upgraded by the package are listed in the *Device List* panel.

3. After all the devices have been listed, click **Next** to perform the upgrade.

   If you enabled *Check Firmware Version*, the Utility compares the device's firmware level with that of the upgrade files. If it finds that the device's version is higher than the upgrade version, it brings up a dialog box informing you of the situation and gives you the option to Continue or Cancel.

   If you didn't enable *Check Firmware Version*, the Utility installs the upgrade files without checking whether they are a higher level, or not.

   As the Upgrade proceeds status messages appear in the Status Messages panel, and the progress toward completion is shown on the *Progress* bar.

Upgrade Succeeded:

After the upgrade has completed, a screen appears to inform you that the procedure was successful:
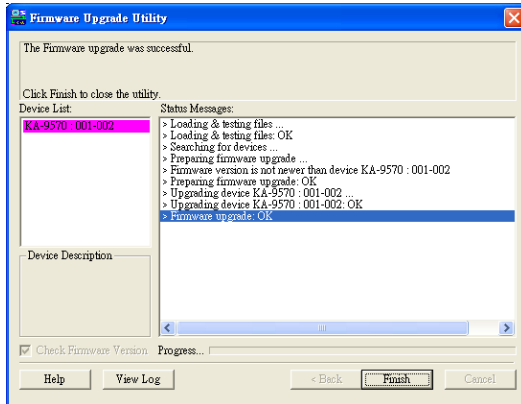
Click **Finish** to close the Firmware Upgrade Utility.

Note: At the completion of the upgrade the KH1508i / KH1516i restarts.

Adapter Cable Firmware Upgrade Recovery

There are basically four conditions that call for firmware upgrade recovery:

◆ When the unit's firmware becomes corrupted for some reason and you are unable to operate it.

◆ When you invoke Adapter Upgrade Mode (see *ADAPTER UPGRADE*, page 30), but decide not to proceed with the upgrade.

◆ When a firmware upgrade procedure is interrupted.

◆ When a firmware upgrade procedure fails.

To perform a firmware upgrade recovery, do the following:

1. Unplug the Adapter Cable from the computer it is connected to.

2. Slide its *Firmware Upgrade Recovery Switch* (located next to the Cat 5 connector) to the **Recover** position.

3. Plug the adapter cable back into the computer.

4. From your KVM switch console, bring up the OSD (see page 21) and select the **F4ADM** function.

5. Scroll down to *ADAPTER UPGRADE*. Press **[Enter]**.

6. Press **[Y]** to invoke Upgrade Mode.

7. Repeat the upgrade procedure starting with *Starting the Upgrade:*, page 47.

8. After the upgrade completes and the switch restarts, unplug the Adapter Cable from the computer and slide the *Firmware Upgrade Recovery Switch* back to the **Normal** position.

9. Plug the adapter cable back into the computer.

This completes the recovery procedure.

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Browser Login

Overview

An On Screen Display (OSD) interface governs remote KH1508i / KH1516i administration as well as user configuration and port switching operations. The OSD can be accessed either with a Windows-based client or a Java-based client. In order to perform remote operations, you must first log in via an Internet browser to connect to the KH1508i / KH1516i.
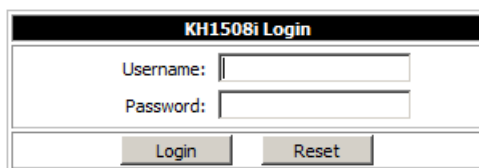
Logging In

To log in from an Internet browser:

1. Open the browser and specify the IP address of the KH1508i / KH1516i in the URL bar.

    Note: If you don't know the IP address, get it from the KH1508i / KH1516i administrator.

2. When the Security Alert dialog box appears, accept the certificate – it can be trusted. (See *Trusted Certificates*, page 148, for details.)

3. A login page appears:

KH1508i Login	
Username:	
Password:	
Login	Reset

(Continues on next page.)

(Continued from previous page.)

4. Provide a valid Username and Password (set up by the KH1508i / KH1516i administrator – see *User Management*, page 65), then Click **Login** to continue.

Note: 1. If you supply an invalid login, the authentication routine will return a message stating, *Invalid Username or Password. Please try again*. If you exceed the number of login failures set by the administrator, a message stating that *The page cannot be displayed*, appears. This is done to confuse and discourage hackers from trying to discover a valid Username and Password. If you see this message, try logging in again being careful with the Username and Password.

2. If you are the Administrator and are logging in for the first time, use the default Username: *administrator*; and the default Password: *password*. For security purposes, we strongly recommend you remove these and give yourself a unique Username and Password (see *User Management*, page 65).

After you have successfully logged in, the KH1508i / KH1516i Main Web page appears with the *General* dialog box displayed:

Note: This is the same dialog box that appears whenever you click the *General* icon at the top left of the page.

Web Page Layout

The General Dialog Box

An explanation of the dialog box fields is given in the table below:

Field	Purpose
Device Name	To make it easier to manage installations that have more than one KH1508i / KH1516i, each one can be given a name. The name that was assigned by the administrator to this unit displays here.
MAC Address	The KH1508i / KH1516i's MAC Address displays here.
Firmware Version	Indicates the KH1508i / KH1516i's current firmware version level. New versions of the KH1508i / KH1516i's firmware can be downloaded from our website as they become available. See *Upgrading the Browser Firmware*, page 56, for details.
Network Transfer Rate	Displays the currently selected rate for data transmission. The network transfer rate is administrator selectable – see *Network Transfer Rate*, page 71.
Reset on exit	To save any configuration/administration changes that you have made in the KH1508i / KH1516i's OSD, place a check here to have the KH1508i / KH1516i implement the changes you have made and reset itself when you log out. **Note:** This checkbox is only enabled for users who have administration privileges.
Last IP from DHCP server	Displays the current IP address of the KH1508i / KH1516i.
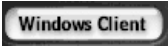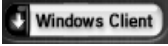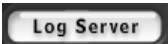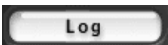
Web Page Icons

The purpose of the other icons at the top of the web page are explained in the table below:

Icon	Function
	Sync: Click this icon to synchronize the KH1508i / KH1516i's time with your computer's time. ◆ If both are in the same time zone, the device's time is changed to match the computer's time. ◆ If they are in different time zones, the device's time is changed to match the computer's time, except that the time zone difference is still maintained.
	Maintenance: Click this icon to install new versions of the KH1508i / KH1516i's firmware (See *Upgrading the Browser Firmware*, page 56, for details)' or download your own private encryption key and signed certificate (See *Private Certificate*, page 57, for details) **Note:** The Maintenance icon only displays for users with administrative permission. It doesn't appear on the web pages of users who don't have the proper permission.
	Logout: You should always click this icon to log out and end your KH1508i / KH1516i session. If you close the browser without first logging out, you will have to wait approximately one minute before logging in again.

Web Page Buttons

The purpose of the buttons at the left of the web page are explained in the table below:

Icon	Purpose
Windows Client	Click this button to download the software to remotely control the KH1508i / KH1516i and the devices connected to it. **Note:** This isn't permanent. It becomes unusable once you exit the webpage. You must download a new Windows Client each time you log in from your browser.
Java Client	For platform independence, the Java client allows users that have Java installed to connect to the KH1508i / KH1516i. Click this button to download the Java Client software to remotely control the KH1508i / KH1516i and the devices connected to it. **Note:** This Java Client isn't permanent. It becomes unusable once you exit the webpage. You must download a new Java Client each time you log in from your browser.
Windows Client	In some instances, administrators don't want the KH1508i / KH1516i to be accessible by browser. Clicking this button allows the user to download the API version of the Windows Client. Once a user has downloaded the API program, the administrator can turn off browser access. API operation is discussed in Chapter 10.
Java Client	In some instances, administrators don't want the KH1508i / KH1516i to be accessible by browser. Clicking this button allows the user to download the API version of the Java Client. Once a user has downloaded the API program, the administrator can turn off browser access. API operation is discussed in Chapter 10.
Log Server	Clicking this button allows the administrator to download and install the Log Server application. See Chapter 9 for Log Server details.
PON	If a Power on the NET™ (PON) module is connected to the KH1508i / KH1516i, clicking this button brings up it's interface.
Log	All the events that take place on the KH1508i / KH1516i are recorded in a log file. Clicking this icon displays the contents of the log file.

Upgrading the Browser Firmware

New firmware upgrade packages are posted on our website as they become available. Check the website regularly to find the latest packages and information relating to them. This section describes how to upgrade the KH1508i / KH1516i's browser firmware.

Note: 1. Upgrading the firmware is an administration function and requires administrator privileges.

2. When you upgrade the browser firmware, you must upgrade the mainboard firmware to the latest version (if it isn't already at the latest version). Upgrading the mainboard firmware is described on page 40.

To upgrade the firmware, do the following:

1. From a computer that is not part of your KVM installation go to our website and choose the model name that relates to your device to get a list of available firmware upgrade files.

2. Choose the browser firmware upgrade file and download it to your computer. It will have a name like **kh1508i-1516i_browser_v.xxxx.csf** (where *xxxx* stands for the version number). The higher the number the newer the file.

3. Open your browser and log in to the KH1508i / KH1516i.

4. Click the *Maintenance* icon (see page 54) to open the Firmware configuration dialog box:

5. Click **Browse**; navigate to the directory that the new firmware file is in and select the file.

6. Click **Upload**.

7. After the upload completes, click the Logout icon at the top right of the web page to exit and reset the KH1508i / KH1516i.

Private Certificate

When logging in over a secure (SSL) connection, a signed certificate is used to verify that the user is logging in to the intended site. For enhanced security, the *Private Certificate* section allows you to use your own private encryption key and signed certificate, rather than the default ATEN certificate.

To do this, click the **Maintenance** icon (see page 54) to open the *Private Certificate* dialog box:
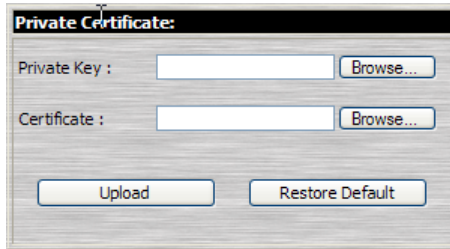
There are two methods for establishing your private certificate: generating a self-signed certificate; and importing a third-party certificate authority (CA) signed certificate.

Generating a Self-Signed Certificate

If you wish to create your own self-signed certificate, a free utility – openssl.exe – is available for download over the web. See *Self-Signed Private Certificates*, page 151 for details about using OpenSSL to generate your own private key and SSL certificate.

Obtaining a CA Signed SSL Server Certificate

For the greatest security, we recommend using a third party certificate authority (CA) signed certificate. To obtain a third party signed certificate, go to a CA (Certificate Authority) website to apply for an SSL certificate. After the CA sends you the certificate, save it to a convenient location on your computer.

Importing the Private Certificate

To import the private certificate, do the following:

1. Click **Browse** to the right of *Private Key*; browse to where your private encryption key file is located; and select it.

2. Click **Browse** to the right of *Certificate*; browse to where your certificate file is located; and select it.

Click **Upload** to complete the procedure.

Activating the OSD

Windows Client

After you have successfully logged in (see *Logging In*, page 51), to activate the browser-based OSD do the following:

1. Click the button (the one without the arrow) at the left of the web page.

   > **Note:** 1. You must have DirectX 8.0 or higher installed on your computer. If not, the Windows Client will not load. If you don't already have it, DirectX is available for free download from Microsoft's website: http://www.microsoft.com/downloads.
   >
   > 2. The Windows Client button with the arrow is for running the AP version of the Windows Client (see Chapter 10, *AP Operation* for more details).

2. When a connection to the KH1508i / KH1516i has been established a screen similar to the one below appears:
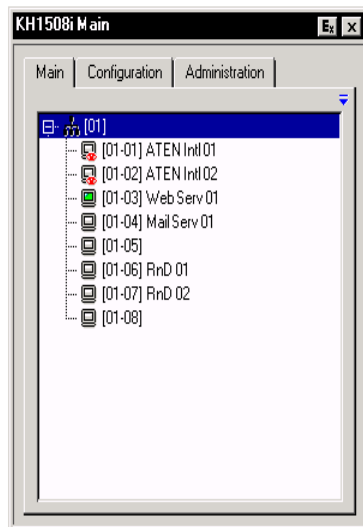
The OSD consists of three pages – Main, Configuration, and Administration. The Administration and Configuration pages are discussed in Chapter 6. The Main page is discussed in the *The User Interface* chapter, on page 85.

Note: 1. The *Administration* tab is disabled for users who don't have administration permission.

2. There is a small Windows Client Control Panel at the lower right. The control panel is discussed in detail on page 86.

Java Client

After you have successfully logged in (see page 51), to activate the Java Client OSD do the following:

1. Click the *Java Client* button (the one without the arrow) at the left of the web page.

Note:	You must have Sun's Java JRE 6 update 3 or higher installed on your computer before running the Java Client. Java is available for free download from the Sun Java website: http://java.sun.com.

2. Accept the security certificates.

3. When the browser dialog asks what to do with the program file, click **Open**.

Note:	1.	If the browser cannot run the file, save it to disk, instead. Then, with your browser still open to the KH1508i / KH1516i web page, run the file from your disk.
	2.	If you use the *save to disk* method, for security purposes, you cannot simply run a previously downloaded version of the program. Each time you want to access the KH1508i / KH1516i, you must log in to the web page with a valid username and password to download a fresh copy of the program.

After a second or two, an *Authentication* progress window appears:

Once the authentication procedure completes successfully, the OSD Main Screen comes up in the center of your monitor. This is the same OSD that appears when the Windows Client is invoked.

As with the Windows Client, the OSD consists of three pages – Main, Configuration, and Administration. The Administration and Configuration pages are discussed in Chapter 6. The Main page is discussed in the *The User Interface* chapter, on page 85.

Note: 1. The *Administration* tab is disabled for users who don't have administration permission.

2. Instead of a control panel like the one that the Windows Client uses, the Java Client has a hidden control panel, located at the bottom center of the screen. The panel becomes visible when the mouse pointer is moved over it. The functions of the Control Panel icons are described in the *The User Interface* chapter, on page 86.

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Chapter 6
Administration and Configuration

Overview

The remote OSD's Administration page lets the Administrator (and users with administration permission - see *User Management*, page 65) configure and control overall KH1508i / KH1516i operations. The tab that activates the page is disabled (grayed out) for users who do not have administration permission.

The OSD *Configuration* page allows users to set up their own, individual, working environments. The KH1508i / KH1516i stores a separate configuration record for each user profile, and sets up the working configuration according to the *Username* that is used to log in.

The Administration Page

Each of the administrative functions is represented by an icon at the left of the page. Clicking the icon brings up its associated dialog box. When the Administration page first comes up the General dialog box appears:
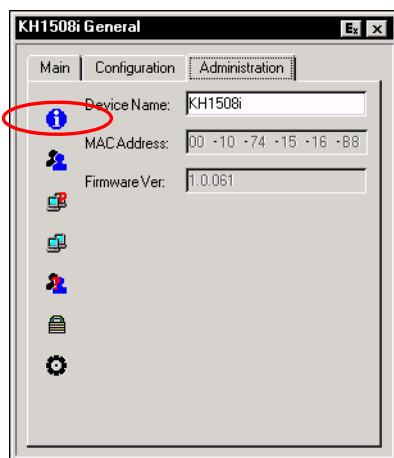
(Continued from previous page.)

General

The General Page presents four items of information. This is the same information that displays after you log in from a browser, or when you click the General icon at the top left of the browser main page. The meaning of these items is described in the table, below:

Item	Meaning
Device Name	This field lets you give the switch a unique name. This can be convenient when you need to differentiate among several devices in multi station installations.
MAC Address	This item displays the KH1508i / KH1516i's MAC address.
Firmware Ver	This item displays the current firmware version number. You can reference it to see if there are newer versions available on the Altusen website.
Last IP from DHCP Server	If the switch is on a network that uses DHCP assigned IP addresses, this item is a convenient way of ascertaining what its IP address is, to inform the Users which IP to use when they want to log in to the KH1508i / KH1516i. **Note:** If the switch has a fixed IP address, this item doesn't appear.

User Management

The User Management dialogs are used to create and manage user profiles. Up to 64 user profiles can be established. Up to 32 users can log in concurrently.
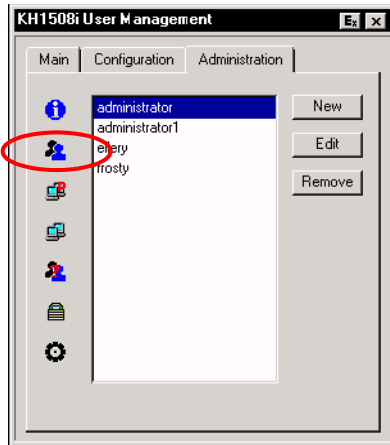
- ◆ To delete a user profile, select it in the list box, and click **Remove**.
- ◆ To modify a user profile, select it and click **Edit**.
- ◆ To add a user, click **New**.

If you choose *Edit* or *New*, a dialog box similar to the one below appears:
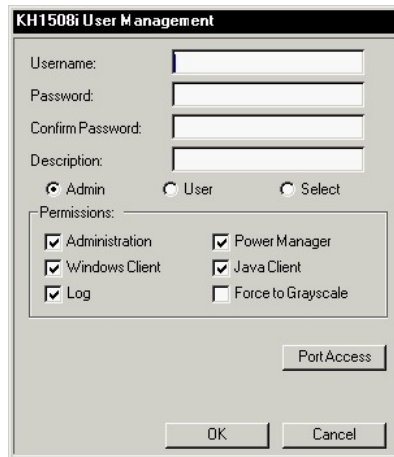
Fill in the required information for a new profile, or modify the existing information to edit a previous profile.

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A description of the field headings is given in the table below:

Heading	Description
Username	A minimum of 6 and a maximum of 16 characters is allowed.
Password	A minimum of 8 and a maximum of 16 characters is allowed. **Note:** For Local Console logins, only A–Z, 0–9, and Space may be used in the password. You will be unable to log in if the password contains characters other than these. Remote login passwords do not have this restriction.
Confirm Password	To be sure there is no mistake in the password, you are asked to enter it again. The two entries must match.
Description	Additional user information that you may wish to include.
Admin	Enabling this gives the user Administrator level access to the KH1508i / KH1516i. All permissions are granted. (See *Permissions*, in this table.)
User	Enabling this gives the user User level access to the KH1508i / KH1516i. Windows Client, Power Manager, and Java Client permissions are granted. (See *Permissions*, in this table.)
Select	This button is automatically enabled if the permission choices selected by the Administrator (in the panel just below) do not match the default access level choices for Admin or User.
Permissions	These are used together with the *Select* radio button to set up permissions that differ from the defaults for Admin and User. 1. Checking *Administration* gives a User administration privileges, which allows him to set up and modify the KH1508i / KH1516i's Administration page settings. 2. Checking *Windows Client* allows a user to access the KH1508i / KH1516i via the Windows Client software. By default, all users may access the KH1508i / KH1516i via the Windows Client software. 3. Checking *Log* allows a User to view and query the log file. The *Log* and *Log Server* buttons appear on the Main web page of Users who have Log permission (see the screenshot on page 52). 4. Checking *Power Manager* allows a User to connect to Power on the Net™ devices. The *PON* button appears on the Main web page of Users who have Power Manager permission (see the screenshot on page 52). 5. Checking *Java client* allows a User to access the KH1508i / KH1516i via the Java Client software. 6. Checking *Force to Grayscale*, allows a User to change the remote display for all users to grayscale. This can speed up I/O transfer in low bandwidth situations. The default is Disabled.

Port Access

Clicking the Port Access button brings up a dialog box that allows the Administrator or a User with Administration permission to define the selected User's access to the computers on a Port-by-Port basis:

```
Port Access Rights
┌─────────────────────────────────┐
│ ⊞ Station [01]                   │
│ ⊞ Station [02]                   │
│ ⊞ Station [03]                   │
│ ⊞ Station [04]                   │
│ ⊞ Station [05]                   │
│ ⊞ Station [06]                   │
│ ⊞ Station [07]                   │
│ ⊞ Station [08]                   │
│ ⊞ Station [09]                   │
│ ⊞ Station [10]                   │
│ ⊞ Station [11]                   │
│ ⊞ Station [12]                   │
│ ⊞ Station [13]                   │
│ ⊞ Station [14]                   │
│ ⊞ Station [15]                   │
│ ⊞ Station [16]                   │
│                                  │
│                 Save    Cancel   │
└─────────────────────────────────┘
```
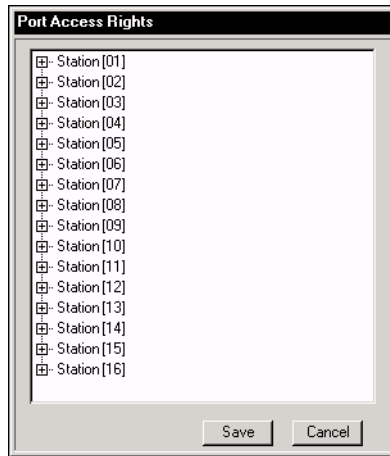
◆ Click + to expand a Station and show a list of its ports

```
Port Access Rights
┌─────────────────────────────────┐
│ ⊟ Station [01]                   │
│    [01-01]        Full           │
│    [01-02]        View Only      │
│    [01-03]        None           │
│    [01-04]        Full           │
│    [01-05]        Full           │
│    [01-06]        Full           │
│    [01-07]        Full           │
│    [01-08]        Full           │
│    [01-09]        Full           │
│    [01-10]        Full           │
│    [01-11]        Full           │
│    [01-12]        Full           │
│    [01-13]        Full           │
│    [01-14]        Full           │
│    [01-15]        Full           │
│    [01-16]        Full           │
│                 Save    Cancel   │
└─────────────────────────────────┘
```
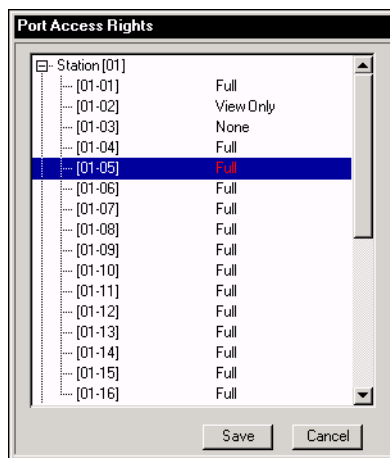
◆ The access rights choices are explained in he table, below:

Choice	Description
Full	The user can view the remote screen and can perform operations on the remote system from his keyboard and monitor.
View Only	The user can only view the remote screen; he cannot perform any operations on it.
None	No access rights - the Port will not show up on the User's list on the Main Screen.

◆ The default setting is *Full* for all users on all ports.The access rights can be changed in the following ways:

- ◆ Click directly over an access right to cycle through the choices

- ◆ Move the highlight bar to a port and press + to cycle forward through the choices

- ◆ Move the highlight bar to a port and press **-** to cycle backward through the choices

- ◆ [Shift] Click on any port to have all the ports on the Station cycle through the choices in unison

- ◆ Hold down [Shift] and tap + to have all the ports on the Station cycle forward through the choices in unison

- ◆ Hold down [Shift] and tap **-** to have all the ports on the Station cycle backward through the choices in unison

◆ When you have finished making your choices, click **Save**.

◆ If you want to abandon your choices and exit without saving, click **Cancel**.

Service Configuration

The Service Configuration dialog is composed of two main panels: Access Port and Log Server:
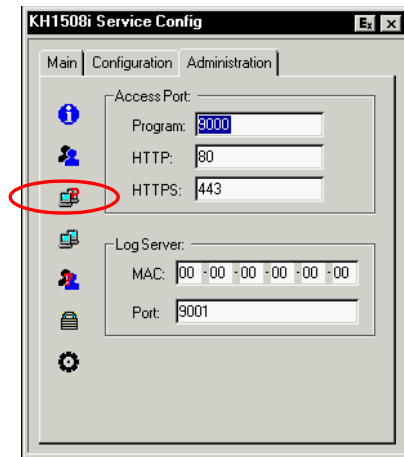
Access Port

As a security measure, if a firewall is being used, the Administrator can specify the port numbers that the firewall will allow, and set the firewall accordingly. Users must specify the port number when they log in to the KH1508i / KH1516i. If an invalid port number (or no port number) is specified, the KH1508i / KH1516i will not be found.

An explanation of the fields is given in the table below:

Field	Explanation
Program	This is the port number that must be specified when connecting from the Windows Client software program. Valid entries are from 1024–65535. The default is 9000.
HTTP	The port number for a browser login. The default is 80.
HTTPS	The port number for a secure browser login. The default is 443.

Note: 1. If there is no firewall (on an Intranet, for example), it doesn't matter what these numbers are set to, since they have no effect.

2. The access ports cannot have the same value. You must set a different value for each one.

Log Server

Important transactions that occur on the KH1508i / KH1516i, such as logins and internal status messages, are kept in an automatically generated log file. Specify the MAC address and a port number for the computer that the Log Server resides on in this panel. The valid port range is 0-65535. The default port number is 9001.

Installation and operation of the Log Server is discussed in Chapter 9. The Log File is discussed on page 115.

Network

The Network dialog is used to specify the KH1508i / KH1516i's network environment.
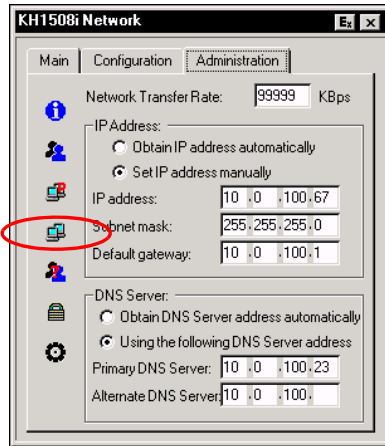
Network Transfer Rate

Set the rate at which the KH1508i / KH1516i transfers data to remote computers. The range is from 8 to 99999 Kilobytes per second (KBps).

IP Address

The KH1508i / KH1516i can either have its IP address assigned dynamically (DHCP), or it can be given a fixed IP address.

◆ For dynamic IP address assignment, select the *Obtain an IP address automatically*, radio button.

◆ To specify a fixed IP address, select the *Set IP address manually*, radio button and fill in the IP address.

DNS Server

◆ For automatic DNS Server address assignment, select the *Obtain DNS Server address automatically*, radio button.

◆ To specify the DNS Server address manually, select the *Use the following DNS Server* radio button, and fill in the addresses for the Primary and Alternate DNS servers.

> **Note:** Specifying at the primary DNS Server address is mandatory. The alternate DNS Server address is optional.
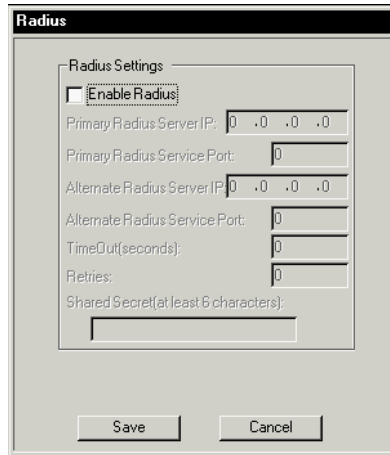
Advanced Network Management Settings

The Advanced Network Management Settings page allows you to set up login authentication and authorization management from external sources. Click on the ANMS icon to select RADIUS, LDAP, or CC (Control Center) Management.
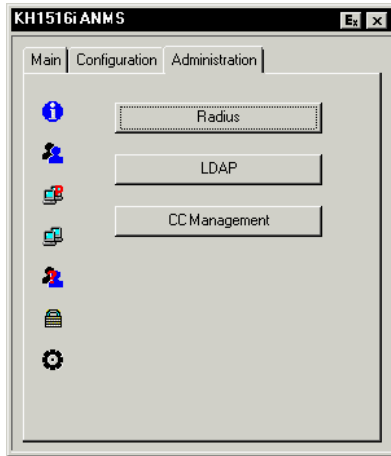
Radius

If you are using a RADIUS server, set up its parameters as follows:

1. Check **Enable Radius**.

2. Fill in the IP addresses and Service Ports for the Primary and Alternate RADIUS servers.

3. Set the time in seconds that the KH1508i / KH1516i waits for a RADIUS server reply before it times out in the Timeout field.

4. Set the number of RADIUS retries allowed in the Retries field.

5. Key the *Shared Secret* character string that you want to use for authentication between the KH1508i / KH1516i and the RADIUS Server in this field.

6. Set the access rights for each user on the RADIUS server according to the information in the table on the next page.

RADIUS Server Access Rights Table:

Character	Meaning
C	Grants the user administrator privileges – allowing system configuration.
W	Allows the user to access the system via the Windows Client program.
J	Allows the user to access the system via the Java Client program.
P	Allows the user to access an attached Power Over the Net™ device.
L	Allows the user to access log information via the user's browser.
PN	Restricts the user from accessing specified ports on the OSD port list. **Syntax:** PN/1/2/3/4 (etc.)
PV	Limits the User to only being able to view specified ports on the OSD port list. **Syntax:** PV/1/2/3/4 (etc.)
UHK	Defines the OSD Hotkey (see page 84). **UHK0:** Scroll Lock + Scroll Lock **UHK1:** Ctrl + Ctrl
UOL	Defines the OSD List Function **UOL0:** All **UOL1:** Powered On **UOL2:** Quick View **UOL3:** Quick View +Powered On
UODM	Selects how the Port ID displays (see page 84). **UODM0:** Port Number + Port Name **UODM1:** Port Number **UODM2:** Port Name
UODT	Determines the length of time in seconds that the Port ID displays on the monitor after a port change (see page 84). **Syntax:** UODTn (where n represents a number from 0-255) The default is 10 seconds.
UBUZ	Turns the beeper off or on (see page 84). **UBUZ0:** Beeper Off **UBUZ1:** Beeper On
ULT	Sets the Logout Timeout. When there is no input from the user for the amount of time set with this function, the user is automatically logged out and will need to log in again. The valid Logout Timeout range is from 0-180 minutes. **Syntax:** ULTn (where n represents a number from 0 to 180 minutes. The default is 30 minutes.
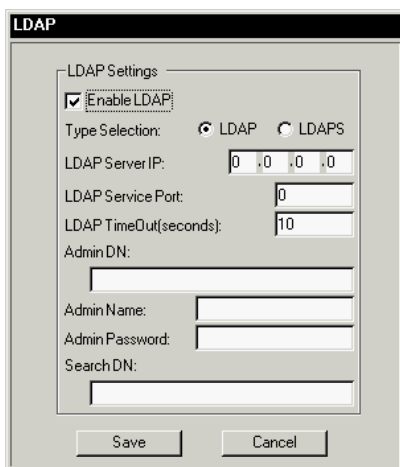
Character	Meaning
USM	Selects which computers the User can access under Auto Scan Mode (see *Scan Select*, page 84). **USM0:** All **USM1:** Powered On **USM2:** Quick View **USM3:** Quick View + Powered On
UST	Determines the length of time in seconds the KVM focus dwells on each port in Auto Scan Mode (see *Scan Duration*, page 84). **Syntax:** UST*n* (where *n* represents a number from 0–255)

Note: 1. Characters are not case sensitive. Upper or lower case works equally well.

2. Characters are comma delimited.

3. An invalid character in the configuration string will prohibit access to the KH1508i / KH1516i for the user.

RADIUS Server Access Rights Examples:

c,w,p	User has administrator privileges; user can access the system via the Windows Client; user can manage the attached Power over the NET device.
w,j,l	User can access the system via the Windows Client; user can access the system via the Java Client; user can access log information via the user's browser.

LDAP Settings

To allow authentication and authorization for the KH1508i / KH1516i via LDAP / LDAPS, set the parameters as follows:

1. Check the box to enable LDAP / LDAPS authentication and authorization.

2. Click a radio button to specify whether to use LDAP or LDAPS

3. Fill in the IP address and port number for the LDAP or LDAPS server. For LDAP, the default port number is 389; for LDAPS, the default port number is 636.

4. Set the time in seconds that the KH1508i / KH1516i waits for an LDAP or LDAPS server reply before it times out.

5. Consult the LDAP / LDAPS administrator to ascertain the appropriate entry for this field. For example, the entry might look like this:

   ou=kh1516i,dc=aten,dc=com

6. Key in the LDAP administrator's username.

7. Key in the LDAP administrator's password.

Set the distinguished name of the search base. This is the domain name where the search starts for user names.

CC Management Settings

To allow authorization for the KH1508i / KH1516i through a CC (Control Center) server, check *Enable* and fill in the CC Server's IP address and the port that it listens on in the appropriate fields.

Security

The Security page controls access to the KH1508i / KH1516i.
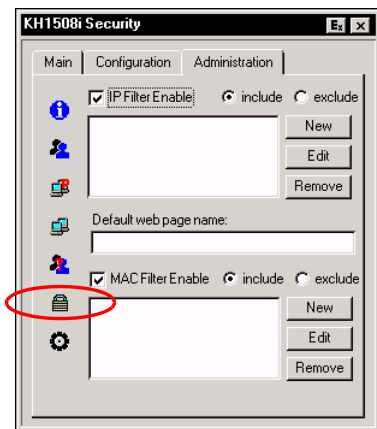
IP and MAC Filtering

* If any filters have been configured, they appear in the IP Filter and/or MAC Filter list boxes.

* IP and MAC Filters control access to the KH1508i / KH1516i based on the IP and/or MAC addresses of the computers attempting to connect. A maximum of 100 IP filters and 100 MAC filters are allowed. To enable IP and/or MAC filtering, **Click** to put a check mark in the *IP Filter Enable* and/or *MAC Filter Enable* checkbox.

  * If the include button is checked, all the addresses within the filter range are allowed access; all other addresses are denied access.

  * If the exclude button is checked, all the addresses within the filter range are denied access; all other addresses are allowed access.

* To add a filter, click **New**. A dialog box similar to the ones below appears:
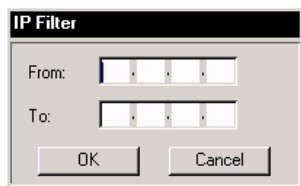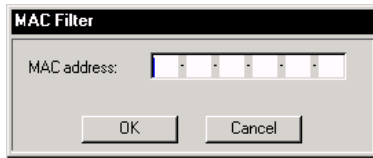
> **Note:** Each IP filter can consist of a single address, or a range of addresses. To filter a single IP address, key in the same address in both the From and To fields. To filter a continuous range of IP addresses, key in the start of the range in the From field; key in the end of the range in the To field.

After you specify the filter addresses, click OK.

- To delete a filter, select it in the IP Filter and/or MAC Filter list boxes and click **Remove**.
- To modify a filter, select it in the IP Filter and/or MAC Filter list boxes and click **Edit**. The Edit dialog box is similar to the New dialog box. When it comes up, simply delete the old address and replace it with the new one.

Default Web Page Name

- The Default web page name entry field lets the Administrator specify a login string (in addition to the IP address) that the user must include when accessing the KH1508i / KH1516i with a browser. For example:

      192.168.0.126/abcdefg

- The user must include the forward slash and the string along with the IP address. For security purposes, we recommend that you change this string from time to time.

> **Note:** If no login string is specified here, anyone will be able to access the KH1508i / KH1516i login page using the IP address alone. This makes your installation less secure.

Customization

The Customization dialog box is arranged in four major sections, as described below:
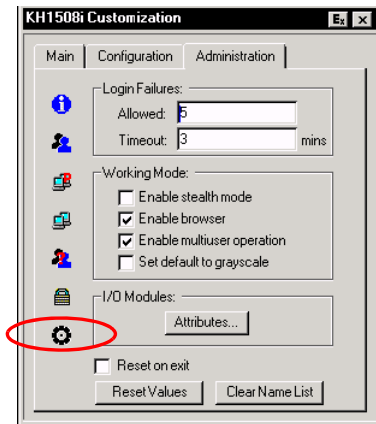
Login Failures

◆ **Allowed:** sets the number of consecutive failed login attempts that are permitted from a remote computer.

◆ **Timeout:** sets the amount of time a remote computer must wait before attempting to login again after it has exceeded the number of allowed failures.

Working Mode

◆ If *Stealth Mode* is enabled, the KH1508i / KH1516i cannot be pinged.

◆ To permit browser access to the KH1508i / KH1516i, click to put a check mark in the *Enable Browser* checkbox. If browser access is not enabled, users will not be able to log into the unit via their browsers.

◆ If *Multiuser Operation* is enabled, up to 32 users can simultaneously access the KH1508i / KH1516i.

◆ If *Set default to grayscale* is enabled, the remote display is changed to grayscale. This can speed up I/O transfer in low bandwidth situations.

I/O Modules

Clicking the *Attributes* button in the I/O Modules section brings up a dialog box that allows you to set attribute parameters for each of the ports:

```
Setting I/O Module Attributes
┌─────────────────────────────────────────┐
□- Station [01]
     [01-01]     MAC     UK      Short
     [01-02]     PC      US      Short
     [01-03]     PC      US      Short
     [01-04]     PC      US      Short
     [01-05]     PC      US      Short
     [01-06]     PC      US      Short
     [01-07]     PC      US      Short
     [01-08]     PC      FRA     Short
     [01-09]     PC      US      Short
     [01-10]     PC      US      Short
     [01-11]     PC      US      Short
     [01-12]     PC      US      Short
     [01-13]     PC      US      Short
     [01-14]     PC      US      Short
     [01-15]     PC      US      Short
     [01-16]     PC      US      Short

Timeout(0-255s)  3      Apply      Cancel
```
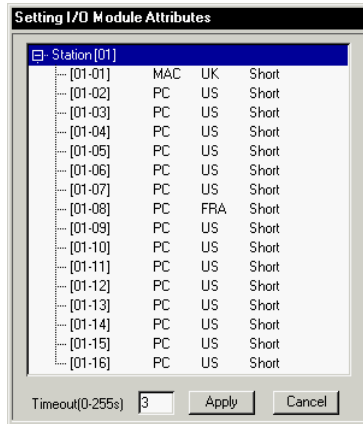
Note: KVM Adapter Cables are referred to as I/O Modules in these dialog boxes.

The port numbers are listed in the column on the left. The port's attributes are shown to its right.

* The first column to the right of the port numbers specifies the operating system that the computer on the connected port is using. Choices are PC, Mac, Sun, and Other. The default is PC.

* The next column specifies the OS language that the computer on the connected port is using. Choices are US English, UK English, French, German, Korean, Japanese, Spanish, and Traditional Chinese. The default is US English.

* The third column specifies the length of the Cat5 cable that is used to connect the computer to the port. Choices are Short (less than 25m), Medium (20–40m), and Long (greater than 35m). The default is Short.

* To change an attribute:
    * Click on it to cycle through the choices.
    * Navigate to it with the Arrow Keys and press + or - to cycle through the choices. Hold down [Shift] while you press + or - to have all the ports on the Station cycle through the attribute choices in unison.

Timeout

The Timeout setting applies to ports with the *Occupy* I/O attribute. It controls the amount of time (0-255 seconds) that elapses before an inactive user is timed out when other users are waiting to take control of the port. Once the first user becomes inactive (i.e. stops sending keyboard and mouse input), it begins to countdown the amount of time specified in the Timeout field. If the user does not send input before the time expires, that user is timed out and the port is released. The next user to send mouse or keyboard input gains control of the port.

To apply Timeout settings:

1. Click **Attributes...** on the *Customization* dialog box. The *Setting I/O Attributes* dialog box appears (see *I/O Modules*, page 81).

2. In the Timeout field, enter the Timeout time in seconds.

3. Click Apply. (To exit without saving your changes, click **Cancel**.)

> **Note:** The Timeout setting applies to all ports on the KH1508i / KH1516i.

Miscellaneous

The functions performed by the remaining elements at the bottom of the screen are described in the table, below:

Parameter	Explanation
Reset on Exit	Place a check here to have the KH1508i / KH1516i reset itself and implement all the new settings when you log out. Following the reset, wait approximately 30 to 60 seconds before logging back in. Note: For some changes the *Reset on exit* check box is automatically selected and the KVM switch will reset when you log out. Clearing the check mark before logging out will cause the new settings to be discarded.
Reset Values	Clicking this button undoes all changes that have been made to the Configuration and Administration pages (except for the Port Names that were assigned to the Ports) and returns the parameters to the original factory default settings (see *OSD Factory Default Settings*, page 152).
Clear Name List	This function clears the Port Name settings.

The Configuration Page

The OSD *Configuration* page allows users to set up their own, individual, working environments. The KH1508i / KH1516i stores a separate configuration record for each user profile, and sets up the working configuration according to the *Username* that is used to log in.
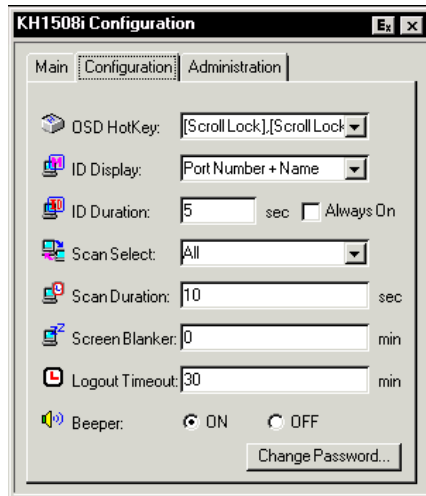
The Configuration page settings are explained in the table on the following page.

(Continues on next page.)

(Continued from previous page.)

Setting	Function
OSD Hotkey	Selects which Hotkey controls the OSD function: **[Scroll Lock] [Scroll Lock]** or [**Ctrl**] **[Ctrl]**. Since the Ctrl key combination may conflict with programs running on the computers, the default is the Scroll Lock combination.
ID Display	Selects how the Port ID is displayed: the Port Number alone (**PORT NUMBER**); the Port Name alone (**PORT NAME**); or the Port Number plus the Port Name (**PORT NUMBER + PORT NAME**). The default is PORT NUMBER + PORT NAME.
ID Duration	Determines how long a Port ID displays on the monitor after a port change has taken place. You can choose an amount from 0 - 255 seconds. The default is 5 Seconds. Check the Always On box to constantly show the ID display.
Scan Select	Selects which computers will be accessed under Auto Scan Mode (see *Auto Scanning*, page 112). Choices are: **ALL** - All the Ports which have been set Accessible (see *Port Access*, page 67); **POWERED ON** - Only those Ports which have been set Accessible and are Powered On; **QUICK VIEW** - Only those Ports which have been set Accessible and have been selected as Quick View Ports (see *SET QUICK VIEW PORTS*, page 28,); **QUICK VIEW + POWERED ON** - Only those Ports which have been set Accessible and have been selected as Quick View Ports and are Powered On. The default is ALL.
Scan Duration	Determines how long the focus dwells on each port as it cycles through the selected ports in Auto Scan Mode (see *Auto Scanning*, page 112). Key in a value from 0 - 255 seconds. The default is 10 seconds; a setting of 0 disables the Scan function.
Screen Blanker	If there is no input from the console for the amount of time set with this function, the screen is blanked. Key in a value from 0–30 minutes. A setting of 0 disables this function. The default is 0 (disabled).
Logout Timeout	If there is no Operator input for the amount of time set with this function, the Operator is automatically logged out. A login is necessary before the KH1508i / KH1516i can be accessed again. Enter a value from 0–180 minutes. The default is 30 minutes. 0 disables the function.
Beeper	When set to **ON**, the beeper sounds whenever the port is switched, when activating the Auto Scan function (see *Auto Scanning*, page 112), or when an invalid entry is made on an OSD menu. The default is ON.
Change Password	Allows a user to change the account password. After clicking the Change Password button, a dialog box appears. Enter the old password. Then, enter a new password and confirm it by entering it again. Press OK to save changes, or press Cancel to discard changes.

Chapter 7
The User Interface

Overview

Once you have successfully logged in (see *Logging In*, page 51), activate the browser-based OSD. The look of the user interface main page varies slightly, depending on which method you used to log in (Windows Client or Java Client). The functions are described fully in the sections that follow.

The Main Page

After you switch to the KH1508i / KH1516i (see page 58), the OSD comes up with the *Main* page and *Windows Client Control Panel* displayed:
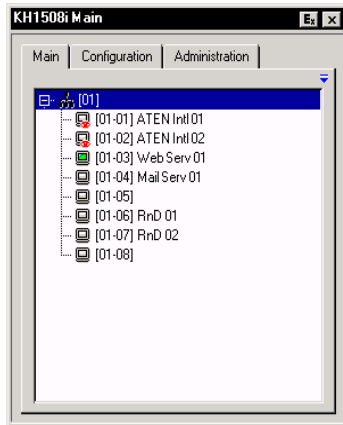
The OSD consists of three pages – Main, Configuration, and Administration. Administration and Configuration are discussed in Chapter 6.

Note: 1. The *Administration* tab is disabled for users who don't have administration permission.

    2. There is a small Control Panel that appears above the Main page when you mouse over the top toolbar. This control panel is discussed in detail on page 86.

Windows Client Control Panel

The control panel consists of an icon bar at the top, with two text bars below it. Initially, the text bars display the video resolution and IP address of the device at the remote location. As the mouse pointer moves over the icons in the icon bar, however, the text bar information changes to describe the icon's function. The functions that the icons perform are described in the table below.

The Control Panel functions are described in the table below:

Icon	Function
	This is a toggle. Click to make the Control Panel persistent – i.e., it always displays on top of other screen elements. Click again to have it display normally.
	Click to bring up the Macros dialog box (see page 88 for details).
	Click to bring up the Video Options dialog box. Right-click to perform a quick Auto Sync (see *Video Settings*, page 93, for details).
	Toggles the display between *Full Screen Mode* and *Windowed Mode*.
	Click to take a snapshot (screen capture) of the remote display. See *Snapshot*, page 101, for details on configuring the Snapshot parameters.
	Click to bring up the Message Board (see *The Message Board*, page 96).
	Click to send a *Ctrl+Alt+Del* signal to the remote system.
	Click to bring up the on-screen keyboard (see *The On-Screen Keyboard*, page 98).
	Click to display a dropdown Macro List of *User* macros. Access and run macros more conveniently rather than using the Macros dialog box (see the *Macros* icon in the table above, and the *Macros* section on page 88).
	Click to bring up the Control Panel Configuration dialog box. See *Control Panel Configuration*, page 100, for details on configuring the Control Panel.

Icon	Function
	Click to exit the remote view.
	These icons show the Num Lock, Caps Lock, and Scroll Lock status of the remote computer. ◆ When the lock state is *On*, the LED is bright green and the lock hasp is closed. ◆ When the lock state is *Off*, the LED is dull green and the lock hasp is open. Click on the icon to toggle the status. **Note:** When you first connect, the LED display may not be accurate. To be sure, click on the LEDs to set them.

Macros

The Macros icon provides access to three functions found in the Macros dialog box: Hotkeys, User Macros, and System Macros. Each of these functions is described in the following sections.

Hotkeys

Various actions related to manipulating the remote server can be accomplished with hotkeys. Selecting the *Hotkeys* radio button lets you configure which hotkeys perform the actions.

The actions are listed to the left; the hotkeys that invoke them are shown to the right. Use the checkbox to the left of an action's name to enable or disable its hotkey.
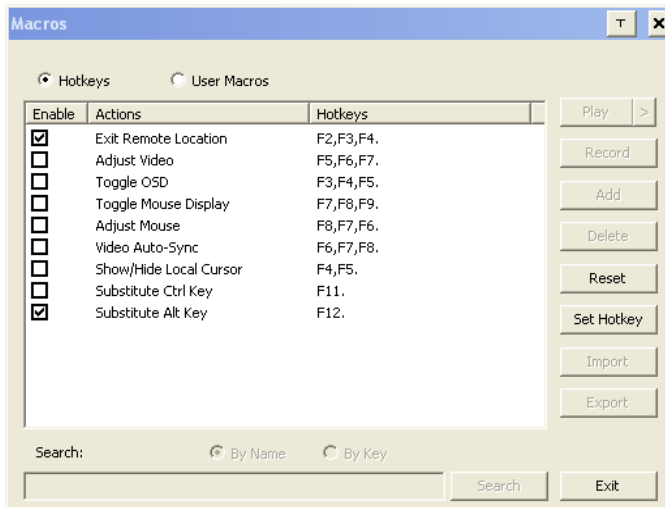
If you find the default Hotkey combinations inconvenient, you can reconfigure them as follows:

1. Highlight an *Action*, then click **Set Hotkey**.

2. Press your selected Function keys (one at a time). The key names appear in the *Hotkeys* field as you press them.

3. When you have finished keying in your sequence, click **Save**.

- To reset all the hotkeys to their default values, click **Reset**; to cancel setting a hotkey value, click **Cancel**; to clear an action's Hotkeys field, click **Clear**.

- You can use the same function keys for more than one action, *as long as the first key is not the same*. For example, you can use **F1 F2 F3** for one action; **F2 F1 F3** for another; **F3 F2 F1** for a third, etc.

Note: You must press and release the keys one key at a time.

An explanation of the Hotkey actions is given in the table below:

Action	Explanation
Exit remote location	Breaks the connection to the KH1508i / KH1516i and returns you to local operation.
Adjust Video	Brings up the video adjustment utility.
Toggle OSD	Toggles the Control Panel Off and On.
Toggle mouse display	If you find the display of the two mouse pointers (local and remote) to be confusing or annoying, you can use this function to shrink the non-functioning pointer down to a barely noticeable tiny circle, which can be ignored. Since this function is a toggle, use the hotkeys again to bring the mouse display back to its original configuration.
Adjust mouse	This utility synchronizes the local and remote mouse movements following a video resolution change. After invoking this utility, simply click the local mouse pointer on top of the remote mouse pointer.
Video Auto-sync	This combination performs an auto-sync operation. It is the same as clicking the Auto-sync button in the *Video Options* dialog box (see *Video Settings*, page 93).
Show/Hide Local Cursor	Toggles the display of your local mouse pointer off and on.
Substitute Alt key	Although all other keyboard input is captured and sent to the remote system, [Alt + Tab] and [Ctrl + Alt + Del] work on your local computer. In order to implement their effects on the remote system, another key may be substituted for the Alt key. If you substitute the F12 key, for example, you would use [F12 + Tab] and [Ctrl + F12 + Del].
Substitute Ctrl key	If your local computer captures Ctrl key combinations, preventing them from being sent to the remote system, you can implement their effects on the remote system by specifying a function key to substitute for the Ctrl key. If you substitute the F11 key, for example, pressing [F11 + 5] would appear to the remote system as [Ctrl + 5].

User Macros

User Macros are used to perform specific actions on the remote server. To create the macro, do the following:

1. Select the *User Macros* radio button, then click **Add**.
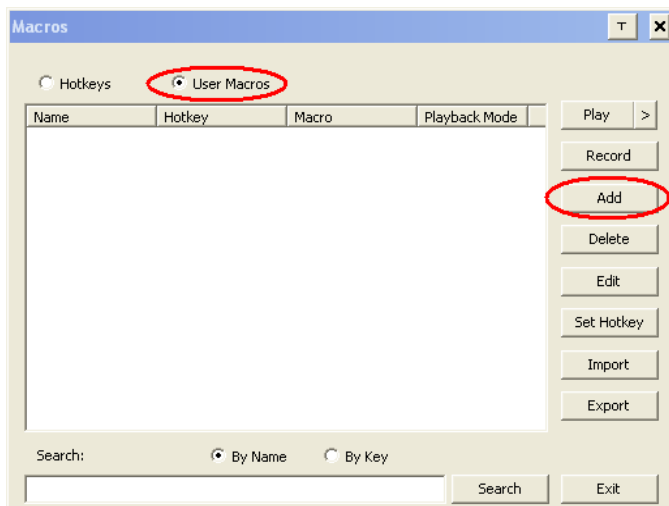
2. In the dialog box that comes up, replace the "New Macro" text with a name of your choice for the macro:
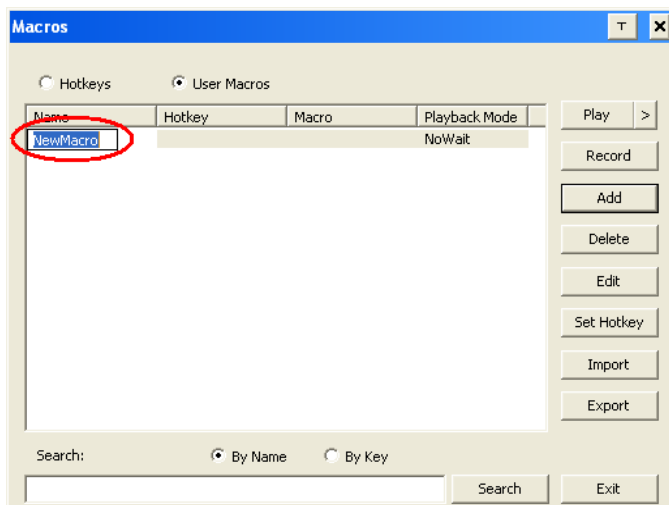
3. Click **Record**.

   The dialog box disappears, and a small panel appears at the top left of the screen:
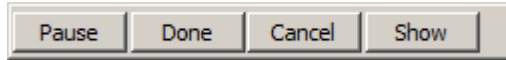
4. Press the keys for the macro.

   Note: To pause macro recording, click **Pause**. To resume, click **Pause** again.

   ---

5. Then, click **Done**.

   You return to the Macros dialog box with your system macro key presses displayed in the Macro column:
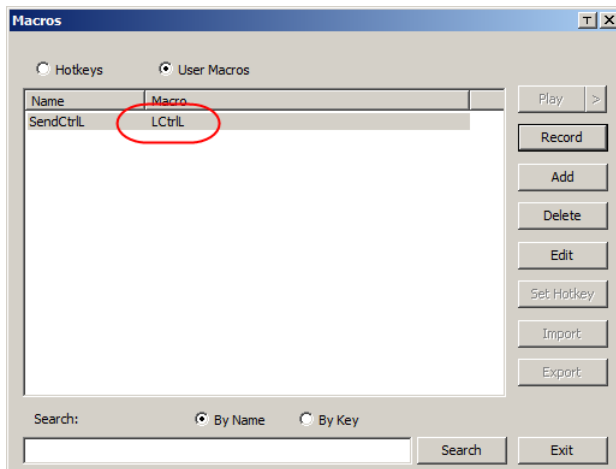
   If you want to change any of the keystrokes, select the macro and click **Edit**.

6. To assign a hotkey to the macro click Set Hotkey; key in the hotkey; then click **Save**.

7. To change any of the keystrokes, select the macro and click **Edit**.

After creating your macros, you can run them in any of three ways:

1. By using the hotkey (if one was assigned).

2. By opening the Macro List on the Control Panel and clicking the one you want (see page 86).

3. By opening this dialog box and clicking **Play.**

If you run the macro from this dialog box, you can specify how the macro runs, by clicking the arrow next to the Play button.
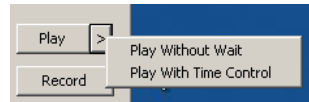
◆ If you choose *Play Without Wait*, the macro runs the keypresses one after another with no time delay between them.

◆ If you choose *Play With Time Control*, the macro waits for the amount of time between key presses that you took when you created it. Click on the arrow next to *Play* to make your choice.

◆ If you click *Play* without opening the list, the macro runs with the default choice (*NoWait* or *TimeCtrl*), which is shown in the *Playback* column.
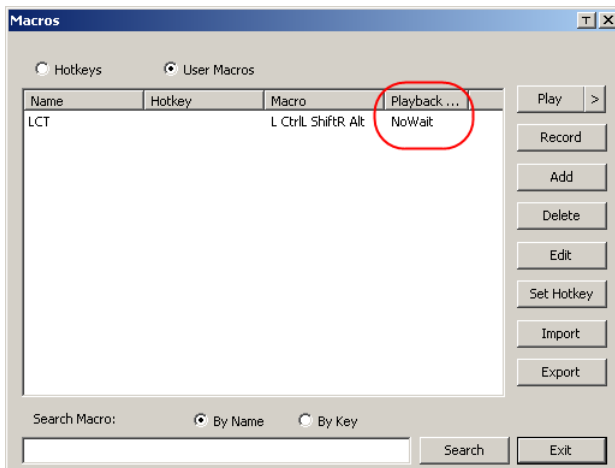
You can change the default choice by clicking on the current choice (*NoWait* in the screenshot shown), and selecting the alternative choice.

Note: User Macros are stored on the local client computer of each user. Therefore there is no limitation on the of number of macros, the size of the macro names, or makeup of the hotkey combinations that invoke them.

Video Settings

The *Video Settings* dialog box allows you to adjust the placement and picture quality of the remote screen display on your monitor.
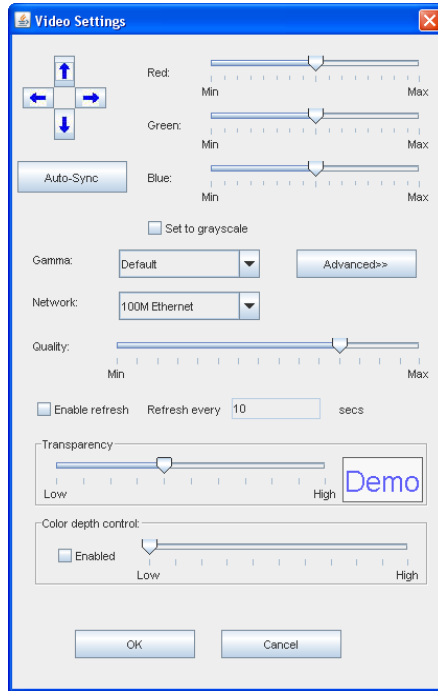
The meanings of the adjustment options are given in the table below:

Option	Usage
Screen Position	Adjust the horizontal and vertical position of the remote computer window by Clicking the Arrow buttons.
Auto-Sync	Click Auto-Sync to have the vertical and horizontal offset values of the remote screen detected and automatically synchronized with the local screen. **Note:** 1. If the local and remote mouse pointers are out of sync, in most cases, performing this function will bring them back into sync. 2. This function works best with a bright screen. 3. If you are not satisfied with the results, use the Screen Position arrows to position the remote display manually.

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Option	Usage
RGB	Drag the slider bars to adjust the RGB (Red, Green, Blue) values. When an RGB value is increased, the RGB component of the image is correspondingly increased. If you enable *Set to Grayscale*, the remote video display is changed to grayscale.
Gamma	This section allows you to adjust the video display's gamma level. This function is discussed in detail in the next section, *Gamma Adjustment*.
Network	Select the type of internet connection that the Local Client computer uses. The KH1508i / KH1516i will use that selection to automatically adjust the *Video Quality* and *Detect Tolerance* settings to optimize the quality of the video display. Since network conditions vary, if none of the pre-set choices seem to work well, you can select *Customize* and use the Video Quality and Detect Tolerance slider bars to adjust the settings to suit your conditions.
Video Quality	Drag the slider bar to adjust the overall Video Quality. The larger the value, the clearer the picture and the more video data goes through the network. Depending on the network bandwidth, a high value may adversely effect response time.
Enable Refresh	The KH1508i / KH1516i can redraw the screen every 1 to 99 seconds, eliminating unwanted artifacts from the screen. Select **Enable Refresh** and enter a number from 1 through 99. The KH1508i / KH1516i will redraw the screen at the interval you specify. This feature is disabled by default. Click to put a check mark in the box next to *Enable Refresh* to enable this feature. **Note:** 1. The switch starts counting the time interval when mouse movement stops. 2. Enabling this feature increases the volume of video data transmitted over the network. The lower the number specified, the more often the video data is transmitted. Setting too low a value may adversely affect overall operating responsiveness.
Transparency	Adjusts the transparency of the Control Panel and other Toolbars. Slide the bar until the display in the example window is to your liking.
Color Depth Control	This setting determines the richness of the video display by adjusting the amount of color information.

Gamma Adjustment

If it is necessary to correct the gamma level for the remote video display, use the *Gamma* function of the Video Adjustment dialog box.

◆ Under *Basic* configuration, there are ten preset and four user-defined levels to choose from. Drop down the list box and choose the most suitable one.

◆ For greater control, clicking the *Advanced* button brings up the following dialog box:
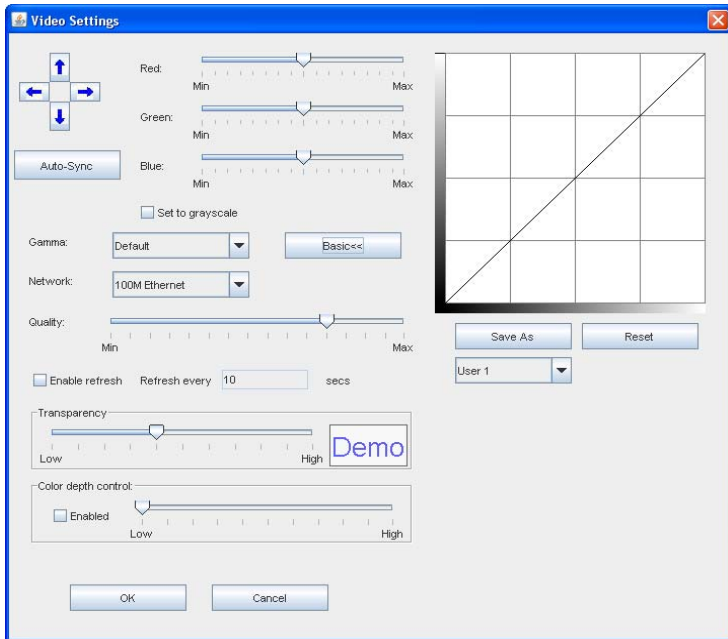
◆ Click and drag the diagonal line at as many points as you wish to achieve the display output you desire.

◆ Click **Save As** to save up to four user-defined configurations derived from this method. Saved configurations can be recalled from the list box at a future time.

◆ Click **Reset** to abandon any changes and return the gamma line to its original diagonal position.

◆ Click **OK** to save your changes and close the dialog box.

◆ Click **Cancel** to abandon your changes and close the dialog box.

Note: For best results, change the gamma while viewing a remote computer.

The Message Board

To alleviate the possibility of access conflicts resulting from multiple user logins, the KH1508i / KH1516i provides a message board that allows users to communicate with each other:
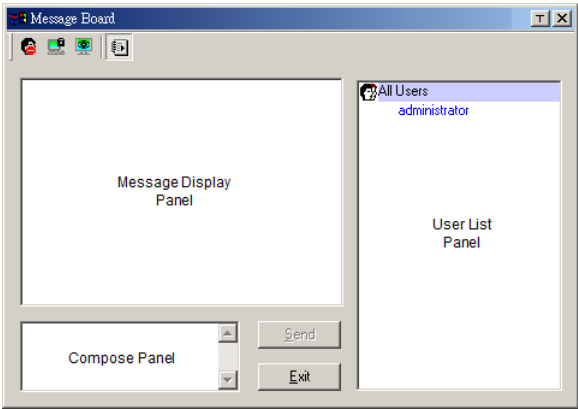
The Button Bar

The buttons on the Button Bar are toggles. Their actions are described in the table below:

Button	Action
	Enable/Disable Chat. When disabled, messages posted to the board are not displayed. The button is shadowed when Chat is disabled. The icon displays next to the user's name in the User List panel when the user has disabled Chat.
	Occupy/Release Keyboard/Video/Mouse. When you Occupy the KVM, other users cannot see the video, and cannot input keyboard or mouse data. The button is shadowed when the KVM is occupied. The icon displays next to the user's name in the User List panel when the user has occupied the KVM.
	Occupy/Release Keyboard/Mouse. When you Occupy the KM, other users can see the video, but cannot input keyboard or mouse data. The button is shadowed when the KM is occupied. The icon displays next to the user's name in the User List panel when the user has occupied the KM.
	Show/Hide User List. When you Hide the User List, the User List panel closes. The button is shadowed when the User List is open.

Message Display Panel

Messages that users post to the board - as well as system messages - display in this panel. If you disable Chat, however, messages that get posted to the board won't appear.

Compose Panel

Key in the messages that you want to post to the board in this panel. Click **Send**, or press [**Enter**] to post the message to the board.

User List Panel

The names of all the logged in users are listed in this panel.

 Your name appears in blue; other users' names appear in black.

 By default, messages are posted to all users. To post a message to one individual user, select the user's name before sending your message.

 If a user's name is selected, and you want to post a message to all users, select All Users before sending your message.

 If a user has disabled Chat, its icon displays before the user's name to indicate so.

 If a user has occupied the KVM or the KM, its icon displays before the user's name to indicate so.
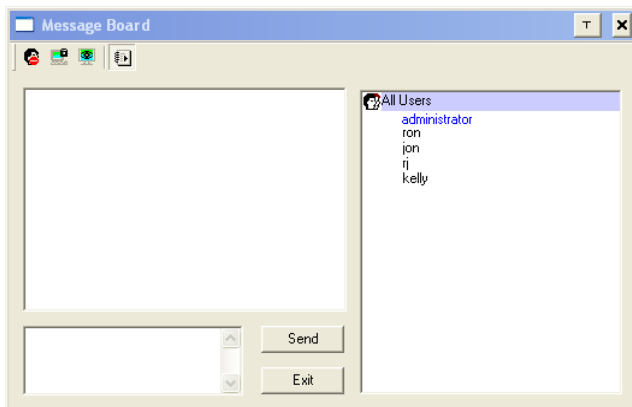
The On-Screen Keyboard

The KH1508i / KH1516i supports an on-screen keyboard, available in multiple languages, with all the standard keys for each supported language. Click this icon to pop up the on-screen keyboard:
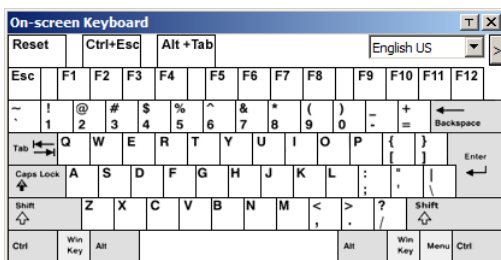
One of the major advantages of the on-screen keyboard is that if the keyboard languages of the remote and local systems aren't the same, you don't have to change the configuration settings for either system. The user just has to bring up the on-screen keyboard; select the language used by the computer on the port he is accessing; and use the on-screen keyboard to communicate with it.

Note: You must use your mouse to click on the keys. You cannot use your actual keyboard.

To change languages, do the following:

1. Click the down arrow next to the currently selected language to drop down the language list.
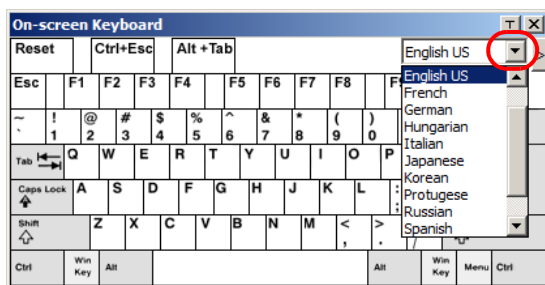
2. Select the new language from the list.

To display/hide the expanded keyboard keys, click the arrow to the right of the language list arrow.
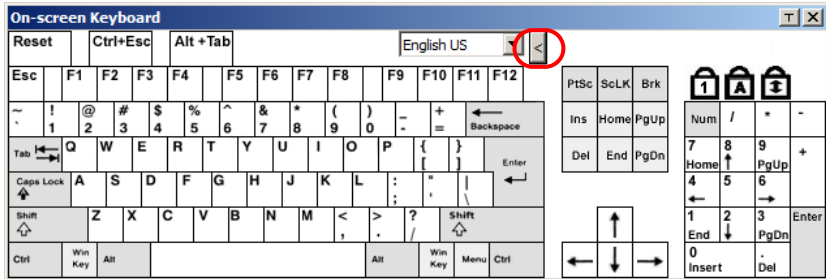
Control Panel Configuration

Clicking the *Control Panel* icon brings up a dialog box that allows you to configure the items that appear on the Control Panel, as well as its graphical settings:
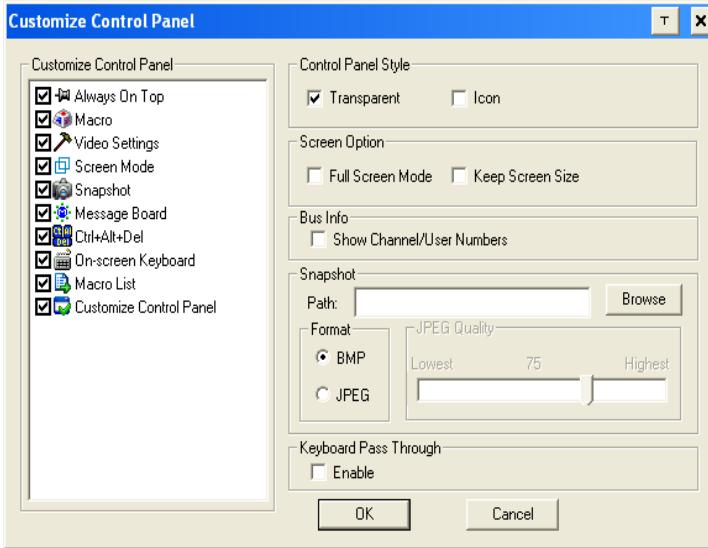
The dialog box is organized into six main sections as described in the table, below:

Item	Description
Customize Control Panel	Allows you to select which icons display in the Control Panel
Control Panel Style	◆ Enabling *Transparent* makes the Control Panel semi-transparent, so that you can see through it to the display underneath. ◆ Enabling *Icon* causes the Control Panel to display as an icon until you mouse over it. When you mouse over the icon, the full panel comes up.

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Item	Description
Screen Options	• If *Full Screen Mode* is enabled, the remote display fills the entire screen.
	• If *Full Screen Mode* is not enabled, the remote display appears as a window on the local desktop. If the remote screen is larger than what is able to fit in the window, move the mouse pointer to the screen border that is closest to the area you want to view and the screen will scroll.
	• If *Keep Screen Size* is enabled, the remote screen is not resized.
	◆ If the remote resolution is smaller than that of the local monitor, its display appears like a window centered on the screen.
	◆ If the remote resolution is larger than that of the local monitor, its display is centered on the screen. To access the areas that are off screen, move the mouse to the corner of the screen that is closest to the area you want to view and the screen will scroll.
	• If *Keep Screen Size* is not enabled, the remote screen is resized to fit the local monitor's resolution.
Bus Info	If *Bus Info* is enabled, the number of the bus you are on, as well as the total number of users on the bus, displays on the bottom row center of the Control Panel as follows: Bus No./Total Users.
Snapshot	These settings let the user configure the KH1508i / KH1516i's screen capture parameters:
	• Path lets you select a directory that the captured screens automatically get saved to. Click **Browse**; navigate to the directory of your choice; then click **OK**. If you don't specify a directory here, the snapshot is saved to your desktop.
	• Click a radio button to choose whether you want the captured screen to be saved as a BMP or a JPEG (JPG) file.
	• If you choose JPEG, you can select the quality of the captured file with the slider bar. The higher the quality, the better looking the image, but the larger the file size.
Keyboard Pass Through	When this is enabled, the Alt-Tab key press is passed to the remote device and affect that device. If it is not enabled, Alt-Tab acts on your Local Client computer.

The Main Page

This page lists all of the KH1508i / KH1516i's ports and governs port access. Selecting a port and double clicking it switches you to the device on that port.

Note: The administrator selects which ports are accessible to each user with the *User Management* function (see page 65 for details).

◆ The OSD uses a tree view. To see the ports for a particular station, click the plus sign [+] in front of the Station Number. To dismiss the list, click the minus sign[–] in front of the Station Number.

◆ A *port icon* in the shape of a monitor displays in front of the port number. Ports that have devices connected to them that are up and running have the port icon lit in green.

◆ Ports that have been selected as Quick View ports (see below), have a red *eye* icon displayed with the monitor in the port icon column to indicate so.

◆ There are two buttons on the title bar at the top right:

Button	Function
Eₓ	*Log out*: clicking this button (or pressing F8) closes the OSD display and logs you out of the KH1508i / KH1516i session.
X	*Close*: clicking this button (or pressing [Esc]) closes the OSD display but does not log you out of the session. You can bring the display back with the OSD hotkeys (see *OSD Hotkey*, page 84).

The administrator can also use this page to enable/disable Quick View status for selected ports, and to create, modify, or delete names for each of the ports.

Quick View Ports

Selecting certain ports as Quick View ports is a way of limiting which ports are included when the KH1508i / KH1516i is in auto scan mode. If the KH1508i / KH1516i is configured to only auto scan ports that have Quick View status (see *Scan Select*, page 84), designating a port as a Quick View port in this dialog box means that it will be included when auto scanning is in effect.

The spacebar toggles a port's Quick View status. To select/deselect a port, highlight it and press the spacebar. When a port has been selected as a Quick View port, a red *eye* icon displays with the monitor icon in the port icon column. When a port isn't selected, there is no red eye icon in the column.

The List Function

The List Function lets you broaden or narrow the scope of which ports the OSD displays (lists) in the Main Screen. To invoke the List Function, click the arrow at the upper right corner of the panel, or press **[F3]**:
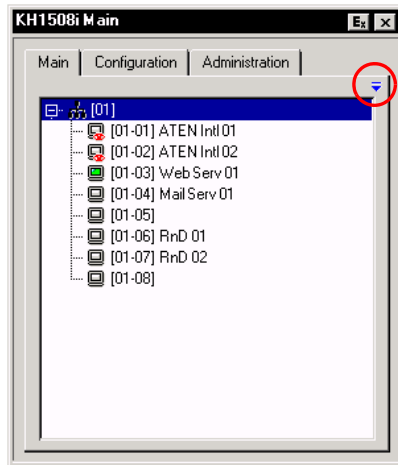
The screen changes to allow you to choose the ports that will be listed:
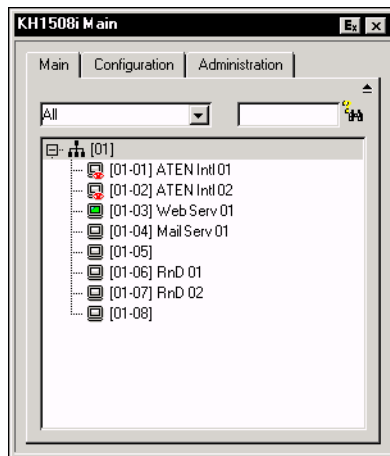
The drop down list on the left offers four fixed choices as shown in the table, below:

Choice	Meaning
All	Lists all of the ports on the installation.
Powered On	Lists only the ports that have their attached devices powered on.
Quick View	Lists only the ports that have been selected as Quick View ports
Quick View + Powered On	Lists only the ports that have been selected as Quick View Ports (see p. 102), and that have their attached devices Powered On.

The text input box on the right allows you to key in a search condition so that only port names that match what you key in show up in the List. Wildcards (? and *) are acceptable, so that more than one port can show up in the list. For example, if you key in **Rn***, both RnD 01 and RnD 02 show up in the list, as shown in the screenshot, below:
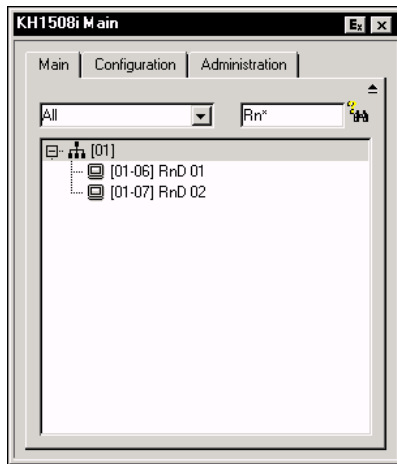
◆ After you key in your string, either click the binoculars to the right of the box, or press **[Enter]**.

◆ To go back to the default view, erase the string and either click the binoculars to the right of the box, or press **[Enter]**.

◆ To dismiss the List function, click the arrow or press **[F3]**.

Port Names

To help remember which computer is attached to a particular port, every port can be given a name. This field allows the Administrator to create, modify, or delete port names. To configure a port name:

1. Click once on the port you want to edit, then either press [F2], or click again on the highlight bar.

   Note: This is not a double click. It involves two separate clicks. A double click will switch you to the device attached to the port.

   After a second or two, the bar changes to a text input box:
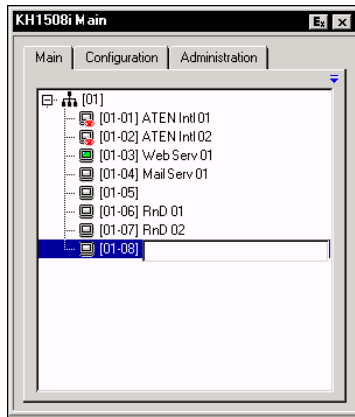
2. Key in the new Port Name, or modify/delete the old one.
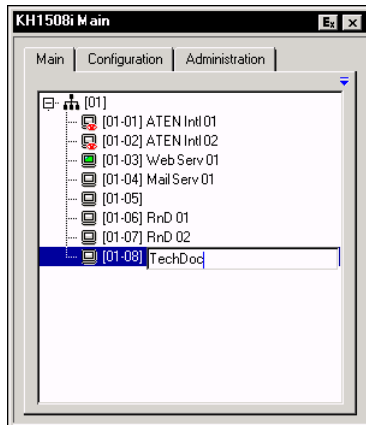
3. When you have finished editing the port name, click anywhere outside of the input box to complete the operation.
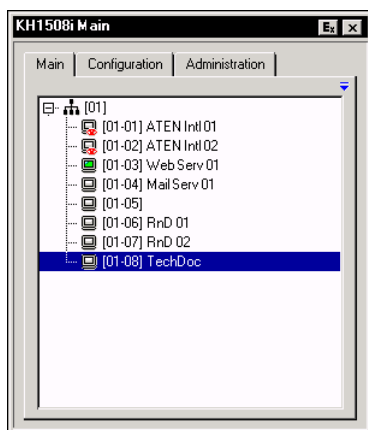
Port Operation

Once you select a port on the OSD Main Screen its screen comes up on your monitor, and your keyboard and mouse input affects the remote system.

Note: The administrator selects which ports are accessible to each user with the *User Management* function (see page 65 for details).

The OSD Toolbar

The OSD provides a toolbar to help you control the KH1508i / KH1516i from within the captured port. To bring up the toolbar, tap the OSD Hotkey twice (Scroll Lock is the default OSD Hotkey). The toolbar appears at the upper left corner of the screen:
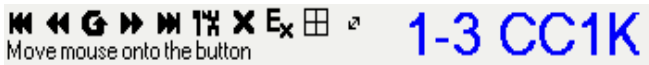
- Depending on the settings that were selected under *ID Display* (see *The Configuration Page*, page 83), the Port Number and/or the Port Name display at the right of the toolbar.

- When the toolbar displays, mouse input is confined to the toolbar area.

- Keyboard input has no effect on the computer connected to the port. To carry out operations on the computer connected to the port, close the toolbar by clicking the **X** on it, or by pressing **[Esc]**. You can also recall the OSD (see below), and select the port again.

- While keyboard input has no effect on the computer connected to the port, you can use the keyboard to perform the following port operation functions, however:
  - Skip Mode port switching – see *Skip Mode*, page 113 for details.
  - Auto Scanning – see *Invoking Auto Scan*, page 112 for details.

Recalling the OSD

To dismiss the toolbar and bring back the OSD display (the Main, Configuration, and Administration pages), do one of the following:

- Tap the OSD Hotkey once;

- From the toolbar click the icon that brings up the OSD (see page 108).

The OSD Toolbar closes, and the main OSD display reappears.

OSD Hotkey Summary Table

The following table presents a summary of the OSD Hotkey actions. To set the OSD Hotkey, see *OSD Hotkey*, page 84.

To...	When...	Do This...
Open the Toolbar	The OSD Toolbar is not open.	Click the OSD Hotkey twice.
Open the OSD	The OSD Toolbar is open.	Click the OSD Hotkey once.
Open the OSD	The OSD Toolbar is not open.	Click the OSD Hotkey three times.

OSD Toolbar Icons

The meanings of the toolbar icons are explained in the table below

	Click to skip to the first accessible port on the entire installation without having to invoke the OSD.
	Click to skip to the first accessible port previous to the current one without having to invoke the OSD.
	Click to begin Auto Scan Mode. The KH1508i / KH1516i automatically switches among the ports that were selected for Auto Scanning under the Configuration *Scan Select* function (see *Scan Select*, page 84). This allows you to monitor their activity without having to switch among them manually.
	Click to skip from the current port to the next accessible one without having to invoke the OSD.
	Click to skip from the current port to the last accessible port on the entire installation without having to invoke the OSD.
	Click to bring up the OSD.
	Click to close the toolbar.
	Click to logout and exit the Windows Client application.
	Click to invoke *Panel Array Mode* (see page 109).
	Switches the Cat5 cable length between the Short, Medium, and Long settings (see *I/O Modules*, page 81 for details). The length of the line displayed changes according to the setting.

Panel Array Mode

Clicking on the OSD Toolbar's *Panel* icon invokes Panel Array Mode. Under this mode, the OSD divides your screen into a 4 x 4 grid of 16 panels:

- ◆ Each panel represents one of the KH1508i / KH1516i's ports. Starting with Port 1 at the upper left; going from left to right; top to bottom; Port 16 is at the lower right.

- ◆ When the Array is first invoked, it scans through each of the ports that were selected for Auto Scanning under the Configuration page's *Scan Select* function (see page 84), and displays information about the port (port name, resolution, on line status, port access status), at the bottom of the panel.

- ◆ The number of panels in the array (16, 9, 4, or 1) can be selected by clicking **Show More Ports** (+), and **Show Fewer Ports** (-) on the panel array toolbar.

- ◆ If the computer connected to a port is on line, its screen displays in its panel, otherwise the panel is blank.

- ◆ Only ports that are accessible to the currently logged in user display (see *Port Access*, page 67). All other panels are blank.

- ◆ If you move the mouse pointer over a panel, information about the port displays at the bottom of the screen.

- ◆ You can access a computer connected to a port by moving the mouse pointer over its panel and clicking. You switch to the computer exactly as if you had selected it from the OSD Main screen.

Panel Array Toolbar

The panel array toolbar, at the lower right of the screen, provides shortcut navigation and control of the panel array as described in the table below:

✥	Click and drag to move the toolbar to another position on the screen.
❚❚	Pause panel scanning, leaving the focus on the panel that currently has it.
◄◄	Move back four panels.
◄◄	Move to the previous panel.
►►	Move to the next panel.
►►❚	Move ahead four panels.
✚	Increase the number of panels in the array.
▬	Decrease the number of panels in the array.
⁴⁄₃	Toggle 4/3 aspect ratio.
✖	Exit Panel Array mode.

Note: For issues affecting multiple user operation in Panel Array Mode, see *Multiuser Operation*, page 111.

Multiuser Operation

The KH1508i / KH1516i supports multiuser operation. Up to 32 users can log in at the same time. When multiple users simultaneously access the KH1508i / KH1516i switch from remote consoles, the rules of precedence that apply are shown in the following table:

Operation	Rule
General	◆ Once a user invokes the OSD, no other user can invoke it until the original user closes it.
Auto Scan Mode	◆ If a user has invoked Auto Scan Mode (see *Auto Scanning*, page 112), but the OSD has not been invoked, another user can interrupt Auto Scan Mode by invoking the OSD.
Panel Array Mode	◆ When a user has invoked Panel Array Mode (see page 109), all successive users automatically enter Panel Array Mode. Panel Array Mode continues until the original user stops it. (Administrators can override Panel Array Mode.) ◆ Only the user who starts Panel Array Mode can use the Skip Mode (see page 113) function. ◆ Only the user who starts Panel Array Mode and users with administrator priveleges can switch ports. Other users automatically switch to the ports that the original user selects. **Note:** If a user does not have access rights to the port that the original user switches to, that user will not be able to view the port. ◆ Individual users can increase or decrease the number of panels they wish to view in Panel Array Mode; however, the picture quality may decrease as the number of panels decreases.

Note: We recommend that the user who starts Panel Array Mode set it to display at least four panels; otherwise, it is possible that other users may receive only part of the picture.

Keyboard Hotkey Operation

Keyboard hotkey combinations allow you to provide KVM focus to a port directly from the keyboard. The KH1508i / KH1516i provides the following hotkey features:

◆ Auto Scanning

◆ Skip Mode Switching

The hotkeys are: **A** and **P** for Auto Scanning; and the Arrow Keys for Skip Mode.

Note: 1. In order for hotkey operations to take place, the OSD Toolbar must be visible (see , page 101). To use the keys designated as hotkeys (i.e. A, P, etc.) for normal, non-hotkey purposes, you must first close the toolbar.

2. For issues affecting multiple user operation in Auto Scan Mode, see *Multiuser Operation*, page 111.

Auto Scanning

The Auto Scan function automatically switches among all the ports that are accessible to the currently logged on user at regular intervals, so that the user can monitor their activity automatically. (See *Scan Select*, page 84, for information regarding accessible ports.)

Setting the Scan Interval

The amount of time Auto Scan dwells on each port is set with the *Scan Duration* setting (see page 84).

Invoking Auto Scan

To start Auto Scanning, tap the **A** key. The Auto Scan function cycles through the ports in order - starting from the first port on the installation. An **S** appears in front of the Port ID Display to indicate that the port is being accessed under Auto Scan Mode.

Pausing Auto Scan

While you are in Auto Scan Mode, you can pause the scanning in order to keep the focus on a particular computer by pressing **P**. During the time that Auto Scanning is paused, the **S** in front of the Port ID blinks On and Off.

Pausing when you want to keep the focus on a particular computer is more convenient than Exiting Auto Scan Mode because when you Resume scanning, you start from where you left off. If, on the other hand, you were to exit and restart Auto Scan Mode, the scanning would start from the very first computer on the installation. To resume Auto Scanning, press any key except Esc or the Spacebar. Scanning continues from where it left off.

Exiting Auto Scan

While Auto Scan Mode is in effect, ordinary keyboard functions are suspended. You must exit Auto Scan Mode in order to regain normal control of the keyboard. To exit Auto Scan Mode press **Esc** or the **Spacebar**. Auto Scanning stops when you exit Auto Scan Mode.

Skip Mode

Skip Mode allows you to switch ports in order to monitor the computers manually. You can dwell on a particular port for as long or as little as you like - as opposed to Auto Scanning, which automatically switches after a fixed interval. The Skip Mode hotkeys are the four Arrow keys. Their operation is explained in the table below:

Arrow	Action
←	Skips from the current port to the first accessible port previous to it. (See *Scan Select*, page 84, for information regarding accessible ports.)
→	Skips from the current port to the first accessible port that comes after it.
↑	Skips from the current port to the very first accessible port on the installation.
↓	Skips from the current port to the very last accessible port on the installation.

Mouse Synchronization

Until you close the KH1508i / KH1516i connection, mouse movements have no effect on your local system, but instead are captured and sent to the remote system.

From time to time, especially if you change video resolution, the local mouse movement may no longer be synchronized with the remote system's mouse pointer. There are three quick methods that can be used to bring the two pointers back into sync:

◆ Right-clicking on the hammer icon in the Windows Client Control Panel.

◆ Moving the mouse pointer into the Control Panel and back out again.

◆ Performing an *Auto Sync* with the Video Adjustment function (see *Video Settings*, page 93, for details).

If performing these actions does not resolve the problem, do the following:

1. Invoke the *Adjust Mouse* function with the *Adjust Mouse* hotkeys (see *Adjust mouse*, page 89, for details).

2. Move the local mouse pointer exactly on top of the remote mouse pointer and click.

If this procedure still does not help, you should set the mouse speed and acceleration for each problematic computer attached to the switch. see *Additional Mouse Synchronization Procedures*, page 145, for instructions.

The Log File

The Main Screen

The KH1508i / KH1516i logs all the events that take place on it. To view the contents of the log file, click the *Log* icon at the left of the web page. A screen similar to the one below appears:

A maximum of 512 events are stored in the log file. To clear the log file, click on the *Clear Log* icon at the lower right of the screen.

Note: The Log File is a temporary file that is erased when the KH1508i / KH1516i is turned off or loses power. It is recommended that you install the Log Server to backup the contents of the log file.

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Chapter 9
The Log Server

The Windows-based Log Server is an administrative utility that records all the events that take place on selected KH1508i / KH1516i units and writes them to a searchable database. This chapter describes how to install and configure the Log Server.

Installation

1. From the computer that you want to use as the Log Server, open your browser and log into the KH1508i / KH1516i (see *Logging In*, page 51).

2. Click the *Log Server* button at the left of the web page to start the Log Server installation program.

3. If any security warning dialog boxes appear, ignore them and click **Run** or **Open**.

   Note: If the browser cannot run the file, save it to disk, instead, and run the file from your disk.

   When you run the installation program (*LogSetup.exe*), the Log Server *Setup* screen comes up:
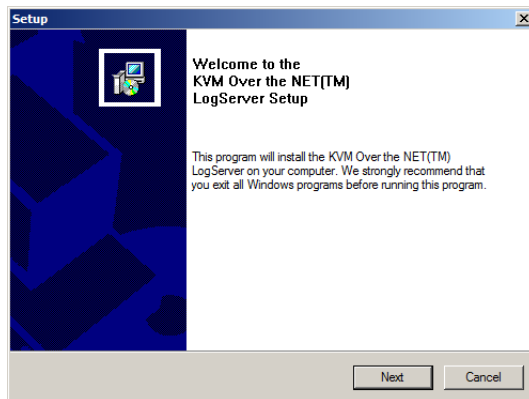
4. Click **Next**. Then follow the on-screen instructions to complete the installation and have the Log Server program icon placed on your desktop.

Starting Up

To bring up the Log Server, either double click the program icon, or key in the full path to the program on the command line. The first time you run it, a screen similar to the one below appears:
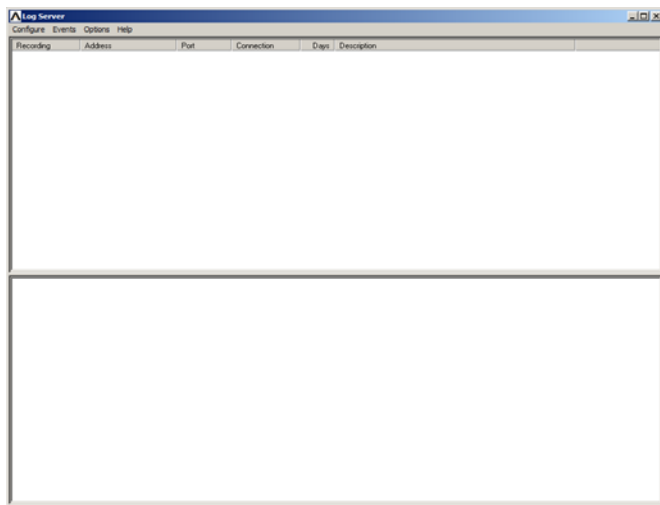
Note: 1. The MAC address of the Log Server computer must be specified on the *Service Configuration* page of the *Administrator Utility* (see page 69).

2. The Log Server requires the Microsoft Jet OLEDB 4.0 driver in order to access the database.

The screen is divided into three components:

◆ A *Menu Bar* at the top

◆ A panel for a list of KH1508i / KH1516i units in the middle (see *Overview*, page 123).

◆ A panel for an *Events List* at the bottom (see *Overview*, page 123).

Each of the components is explained in the sections that follow.

The Menu Bar

The Menu bar consists of four items:

◆ Configure

◆ Events

◆ Options

◆ Help

These are discussed in the sections that follow.
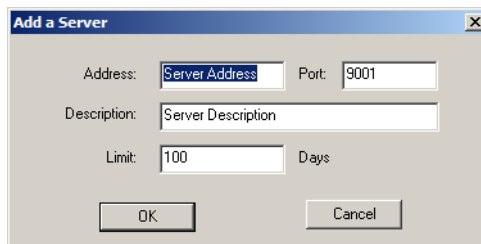
Note: If the Menu Bar appears to be disabled, click in the KH1508i / KH1516i List window to enable it.

Configure

The Configure menu contains three items: Add, Edit, and Delete. They are used to add new KH1508i / KH1516i units to the KH1508i / KH1516i List, edit the information for units already on the list, or delete KH1508i / KH1516i units from the list.

◆ To add a KH1508i / KH1516i to the KH1508i / KH1516i List, click **Add**.

◆ To edit or delete a listed KH1508i / KH1516i, first select the one you want in the KH1508i / KH1516i List window, then open this menu and click **Edit** or **Delete**.

When you choose *Add* or *Edit*, a dialog box, similar to the one below appears:

A description of the fields is given in the table, below:

Field	Explanation
Address	This can either be the IP address of the KH1508i / KH1516i or its DNS name (if the network administrator has assigned it a DNS name).
Port	The Port number assigned to the KH1508i / KH1516i (see *Log Server*, page 70).
Description	This field is provided so that you can put in a descriptive reference for the unit to help identify it.
Limit	This specifies the number of days that an event should be kept in the Log Server's database before it expires and it is cleared out.

Fill in or modify the fields, then click **OK** to finish.

Events

The Events Menu has two items: *Search* and *Maintenance*.

Search

Search allows you to search for events containing specific words or strings. When you access this function, a screen similar to the one below appears:

A description of the items is given in the table below:

Item	Explanation
New search	This is one of three radio buttons that define the scope of the search. If it is selected, the search is performed on all the events in the database for the selected KH1508i / KH1516i.
Search last results	This is a secondary search performed on the events that resulted from the last search.
Search excluding last results	This is a secondary search performed on all the events in the database for the selected KH1508i / KH1516i *excluding* the events that resulted from the last search.
Server List	KH1508i / KH1516i units are listed according to their IP address. Select the unit that you want to perform the search on from this list. You can select more than one unit for the search. If no units are selected, the search is performed on all of them.
Priority List	Sets the level for how detailed the search results display should be. 1 is the most general; 3 is the most specific.
Start Date	Select the date that you want the search to start from. The format follows the MM/DD/YYYY convention, as follows: `11/04/2005`
Start Time	Select the time that you want the search to start from.
End Date	Select the date that you want the search to end at.
End Time	Select the time that you want the search to end at.
Pattern	Key in the pattern that you are searching for here. The multiple character wildcard (%) is supported. E.g., h%ds would match *hands* and *hoods*.
Results	Lists the events that contained matches for the search.
Search	Click this button to start the search.
Print	Click this button to print the search results.
Exit	Click this button to exit the Search dialog box.

Maintenance

This function allows the administrator to perform manual maintenance of the database. He can use it to erase specified records before the expiration time that was set with the *Limit* setting of the Edit function (see page 120).

Options

Network Retry allows you to set the number of seconds that the Log Server should wait before attempting to connect if the previous attempt to connect failed. When you click this item, a dialog box, similar to the one below appears:
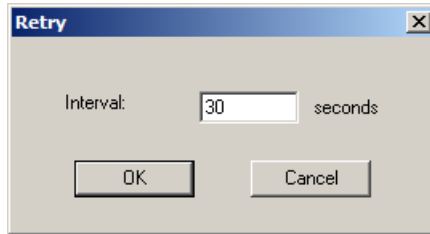
Key in the number of seconds, then click **OK** to finish.

Help

From the Help Menu, click Contents to access the online Windows Help file. The help file contains instructions about how to setup, operation and troubleshoot the Log Server.

The Log Server Main Screen

Overview

The Log Server Main Screen is divided into two main panels.

◆ The upper (List) panel lists the KH1508i / KH1516i units that have been selected for the Log Server to track (see *Configure*, page 119).

◆ The lower (Event) panel displays the log events for the currently selected KH1508i / KH1516i (the highlighted one - if there are more than one). To select a KH1508i / KH1516i unit in the list, simply click on it.
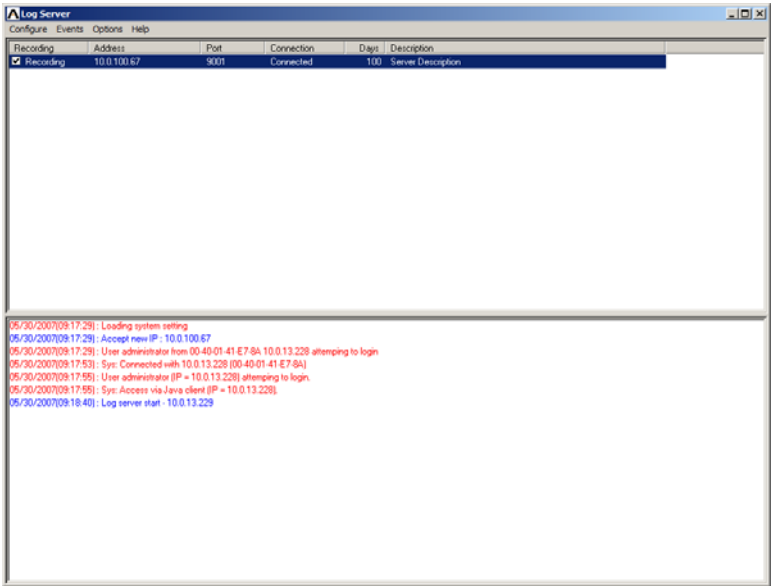
The List Panel

The List panel contains six fields:

Field	Explanation
Recording	Determines whether the Log Server records log events for this KH1508i / KH1516i or not. If the Recording checkbox is checked, the field displays *Recording*, and log events are recorded. If the Recording checkbox is not checked, the field displays *Paused*, and log events are not recorded.
	Note: Even though a KH1508i / KH1516i is not the currently selected one, if its Recording checkbox is checked, the Log Server will still record its log events.
Address	This is the IP Address or DNS name that was given to the KH1508i / KH1516i when it was added to the Log Server (see *Configure*, page 119).
Port	This is the Port number assigned to the KH1508i / KH1516i (see *Configure*, page 119).
Connection	If the Log Server is connected to the KH1508i / KH1516i, this field displays *Connected*.
	If it is not connected, this field displays *Waiting*. This means that the Log Server's MAC address has not been set properly. It needs to be set on the *Service Configuration* page of the *Administrator Utility* (see page 69).
Days	This field displays the number of days that the KH1508i / KH1516i's log events are to be kept in the Log Server's database before expiration (see *Configure*, page 119).
Description	This field displays the descriptive information given for the KH1508i / KH1516i when it was added to the Log Server (see *Configure*, page 119).

The Event Panel

The lower panel displays log events for the currently selected KH1508i / KH1516i. Note that if there are more than one KH1508i / KH1516i units, even though they aren't currently selected, if their *Recording* checkbox is checked, the Log Server records their log events and keeps them in its database.

Chapter 10
AP Operation

Overview

In some cases, the Administrator may not want the KH1508i / KH1516i to be available via browser access. AP versions of the Windows Client and the Java Client are provided to enable direct access of the KH1508i / KH1516i without having to go through a browser.

The programs are initially downloaded from the browser page. After they have been downloaded by the Users, the Administrator can disable browser access (see *Working Mode*, page 80).

The Windows Client

Installation

To install the Windows Client on your computer, do the following:

1. Log into the KH1508i / KH1516i with your browser, and click the second Windows Client button (the one with the arrow). A screen similar to the one below appears:
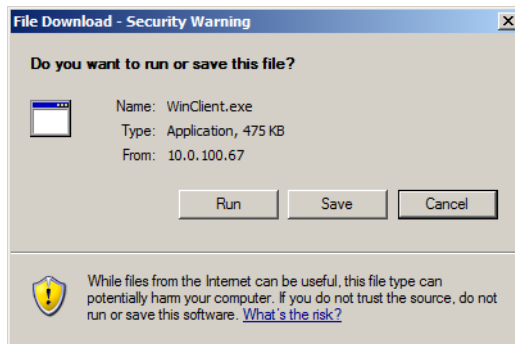
2. Click **Save**. In the dialog box that comes up specify a location on your hard disk to save it to.

Starting Up

To connect to the KH1508i / KH1516i, go to the location on your hard disk that you saved the Windows Client program to, and double-click its icon (WinClient.exe) to bring up the Windows Client Connection Screen:
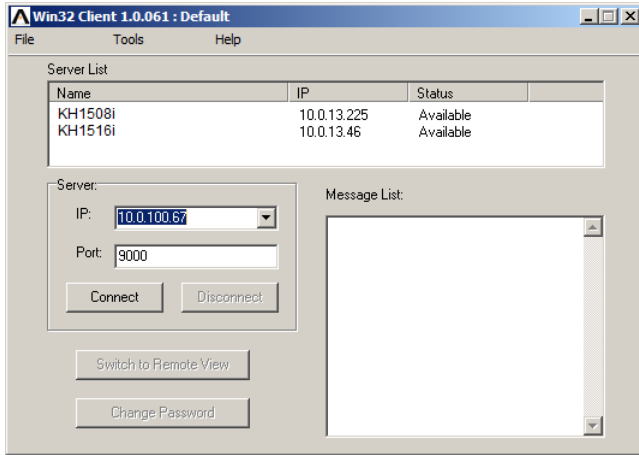
Note: You must have DirectX 8.0 or higher installed on your computer. If not, the Client program will not load.

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A description of the Connection Screen is given in the following table:

Menu Bar	The Menu Bar contains three items: File, Tools, and Help. 1. The *File Menu* allows the operator to Create, Save, and Open user created Work files (see page 128 for details). 2. The *Tools Menu* contains two entries: *Keyboard* and *Config*, (see page 128 for details).
Server List	Each time the WinClient.exe file is run, it searches the User's local LAN segment for KH1508i / KH1516i units, and lists whichever ones it finds in this box. If you want to connect to one of these units, **double-click** it.
Server	This area is used when you want to connect to a KH1508i / KH1516i at a remote location. You can drop down the *IP* list box and select an address from the list. If the address you want isn't listed, you can key in the IP address you want. Then, key in the Port number in the *Port* field. If you don't know the Port number, then contact the Administrator. When the IP address and Port number for the unit you wish to connect to have been specified, click **Connect** to start the connection. When you have finished with your session, Click **Disconnect** to end the connection.
Message List	Lists status messages regarding the connection to the KH1508i / KH1516i.
Switch to Remote View	Once contact with a KH1508i / KH1516i has been established, this button becomes active. Click it to switch and take over console control of the unit that is attached to the KH1508i / KH1516i. The screen output of the unit appears on your monitor. Your keystrokes and mouse movements are captured and sent to the KH1508i / KH1516i to be executed on the attached unit. If the KH1508i / KH1516i is connected to a KVM switch, you can control the switch and the computers connected to it just as if you were connected locally.
Change Password	This button becomes active after a connection to a KH1508i / KH1516i unit has been established. It allows the User to change the password used to log in to the KH1508i / KH1516i.

■ The File Menu

The *File Menu* allows the operator to Create, Save, and Open user created Work files. A Work File consists of all the information specified in a Client session. This includes the Server List and Server IP list items, as well as the Hotkey settings.

Whenever a user runs the Client program, it opens with the values contained in the *current work file*. The current work file consists of the values that were in effect the last time the program was closed.

The File menu consists of three items, as follows:

New	Allows the user to create a named work file so its values will not be lost, and it will be available for future recall.
Open	Allows the user to open a previously saved work file and use the values contained in it.
Save	Allows the user to save the values presently in effect as the *current work file*.

■ The Tools Menu

Tools menu operations are performed after you connect, but before you switch to remote view. There are two entries on the Tools Menu: Keyboard and Config. They are explained in the sections that follow.

Keyboard

Various configuration actions related to the keyboard, video, and mouse can be performed via hotkey combinations. The Hotkey Setup utility is accessed by opening the *Tools* menu and selecting *Keyboard*. The Hotkey Setup Screen that appears is essentially the same dialog box discussed in the browser-based *Windows Client* chapter. See , page 101, for details.

Config

When you select *Config*, a screen similar to the one below appears:
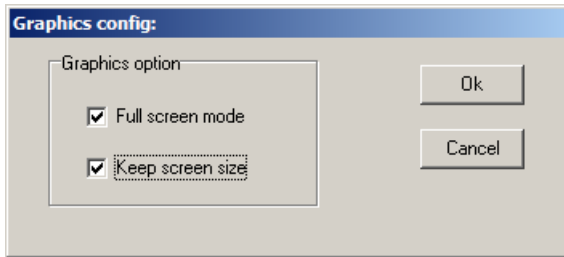
- ◆ If *Full Screen Mode* is enabled (there is a checkmark in the box), the remote display fills the entire screen of your local monitor.

- ◆ If *Full Screen Mode* is not enabled (there is no checkmark in the box), the remote display appears as a window on your desktop. If the remote screen is larger than what is able to fit in the window, move the mouse pointer to the screen border that is closest to the area you want to view and the screen will scroll.

- ◆ If *Keep Screen Size* is enabled (there is a checkmark in the box), the remote screen is not resized.

  - ◆ If the remote resolution is smaller, its display appears as a window centered on your screen.

  - ◆ If the remote resolution is larger, its display is centered on your screen. To access the areas that are off screen, move the mouse to the corner of the screen that is closest to the area you want to view and the screen will scroll.

- ◆ If *Keep Screen Size* is not enabled (there is no checkmark in the box), the remote screen is resized to fit the resolution of your local monitor.

Connecting

To connect to a KH1508i / KH1516i unit:

1. From the *Server List* box, **double-click** the device that you wish to connect to. Or, specify the IP address and port number in the *Server IP* and *Port* input boxes, and then Click **Connect**. The *Login* dialog box appears:
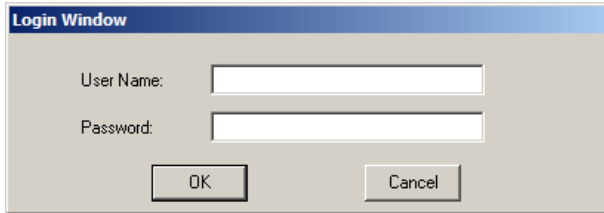
2. Key in a valid Username and Password, and then click **OK**.

   The program attempts to connect to the selected KH1508i / KH1516i unit. While it does so, you can check the *Message List* window for status messages regarding the operation's progress.

3. Once contact with the KH1508i / KH1516i has been established, the *Switch to Remote View* button becomes active. Click it to connect to the KH1508i / KH1516i and take over console control of the unit that is connected to it.
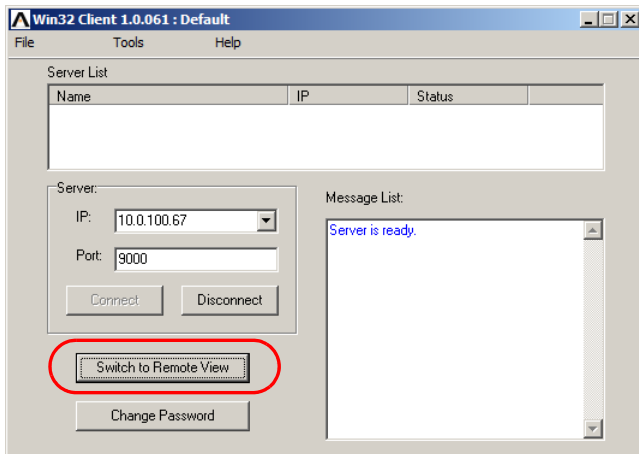
Operation

Once a connection to the KH1508i / KH1516i has been established, the remote system's video output is captured and displayed on your monitor. At the same time, your local keystroke and mouse input is captured and sent to the remote system.

The look and feel of the AP Windows Client operation is the same as for the browser version of the Windows Client. Refer back to Chapter 7, for details.

Ending the Session

After you log out of the KH1508i / KH1516i, you return to the Connection dialog box. Click **Disconnect** to end the session.

The Java Client

Installation

To install the Java Client on your computer, do the following:

1. Log into the KH1508i / KH1516i with your browser, and click the second *Java Client* button (the one with the arrow). A screen similar to the one below appears:
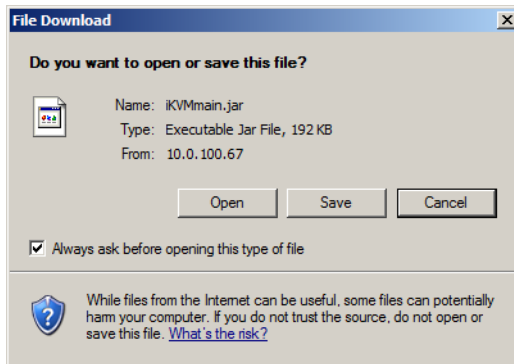
2. Click **Save**. In the dialog box that comes up specify a location on your hard disk to save it to.

Starting Up

To connect to the KH1508i / KH1516i do the following:

1. Open a command line window and change to the directory where the Java Client file (*iKVMmain.jar*) is at.

2. From the command line, issue the following command:

```
java - jar iKVMmain.jar
```

Note: You must install Java JRE 6 update 3 or higher before running the Java Client. It will not work with earlier versions of Java.

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The *Address Input* dialog box appears:

3. Key in the IP address for the unit you want to connect to - including a forward slash followed by the login string.

Note: For security purposes, the login string (set by the administrator), must be specified correctly as part of the IP address. The system administrator may change the string from time to time to thwart unauthorized access attempts. Be sure you have the correct string when you attempt to connect.

After you establish a connection, a Login dialog box appears:
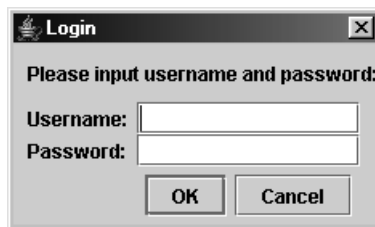
4. Provide a valid Username and Password, and then click **OK**.

Once the authentication procedure completes successfully, the KH1508i / KH1516i main page displays on your monitor.

Operation

The look and feel of the AP Java Client operation is the same as for the browser version of the Windows Client. Refer back to Chapter 7, for details.

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Chapter 11
Keyboard Emulation

Mac Keyboard

The PC compatible (101/104 key) keyboard can emulate the functions of the Mac keyboard. The emulation mappings are listed in the table below.

PC Keyboard	Mac Keyboard
[Shift]	Shift
[Ctrl]	Ctrl
⊞	⌘
[Ctrl] [1]	🔇
[Ctrl] [2]	🔉
[Ctrl] [3]	🔊
[Ctrl] [4]	⏏
[Alt]	Alt
[Print Screen]	F13
[Scroll Lock]	F14
📝	=
[Enter]	Return
[Backspace]	Delete
[Insert]	Help
[Ctrl] ⊞	F15

Note: When using key combinations, press and release the first key (Ctrl), then press and release the activation key.

Sun Keyboard

The PC compatible (101/104 key) keyboard can emulate the functions of the Sun keyboard when the Control key [Ctrl] is used in conjunction with other keys. The corresponding functions are shown in the table below.

PC Keyboard	Sun Keyboard
[Ctrl] [T]	Stop
[Ctrl] [F2]	Again
[Ctrl] [F3]	Props
[Ctrl] [F4]	Undo
[Ctrl] [F5]	Front
[Ctrl] [F6]	Copy
[Ctrl] [F7]	Open
[Ctrl] [F8]	Paste
[Ctrl] [F9]	Find
[Ctrl] [F10]	Cut
[Ctrl] [1]	▭ ◀
[Ctrl] [2]	◑ - ◀)
[Ctrl] [3]	◑ + ◀))
[Ctrl] [4]	☾
[Ctrl] [H]	Help
🗒	Compose
⊞	◆

Note: When using key combinations, press and release the first key (Ctrl), then press and release the activation key.

Appendix

Safety Instructions

General

- Read all of these instructions. Save them for future reference.

- Follow all warnings and instructions marked on the device.

- Do not place the device on any unstable surface (cart, stand, table, etc.). If the device falls, serious damage will result.

- Do not use the device near water.

- Do not place the device near, or over, radiators or heat registers.

- The device cabinet is provided with slots and openings to allow for adequate ventilation. To ensure reliable operation, and to protect against overheating, these openings must never be blocked or covered.

- The device should never be placed on a soft surface (bed, sofa, rug, etc.) as this will block its ventilation openings. Likewise, the device should not be placed in a built in enclosure unless adequate ventilation has been provided.

- Never spill liquid of any kind on the device.

- Unplug the device from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.

- The device should be operated from the type of power source indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.

- The device is designed for IT power distribution systems with 230V phase-to-phase voltage.

- To prevent damage to your installation it is important that all devices are properly grounded.

- The device is equipped with a 3-wire grounding type plug. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not attempt to defeat the purpose of the grounding-type plug. Always follow your local/national wiring codes.

- Do not allow anything to rest on the power cord or cables. Route the power cord and cables so that they cannot be stepped on or tripped over.

- If an extension cord is used with this device make sure that the total of the ampere ratings of all products used on this cord does not exceed the extension cord ampere rating. Make sure that the total of all products plugged into the wall outlet does not exceed 15 amperes.

- To help protect your system from sudden, transient increases and decreases in electrical power, use a surge suppressor, line conditioner, or uninterruptible power supply (UPS).

- Position system cables and power cables carefully; Be sure that nothing rests on any cables.

- Never push objects of any kind into or through cabinet slots. They may touch dangerous voltage points or short out parts resulting in a risk of fire or electrical shock.

- Do not attempt to service the device yourself. Refer all servicing to qualified service personnel.

- If the following conditions occur, unplug the device from the wall outlet and bring it to qualified service personnel for repair.
  - The power cord or plug has become damaged or frayed.
  - Liquid has been spilled into the device.
  - The device has been exposed to rain or water.
  - The device has been dropped, or the cabinet has been damaged.
  - The device exhibits a distinct change in performance, indicating a need for service.
  - The device does not operate normally when the operating instructions are followed.

- Only adjust those controls that are covered in the operating instructions. Improper adjustment of other controls may result in damage that will require extensive work by a qualified technician to repair.

- Do not connect the RJ-11 connector marked "UPGRADE" to a public telecommunication network.

Rack Mounting

- Before working on the rack, make sure that the stabilizers are secured to the rack, extended to the floor, and that the full weight of the rack rests on the floor. Install front and side stabilizers on a single rack or front stabilizers for joined multiple racks before working on the rack.

- Always load the rack from the bottom up, and load the heaviest item in the rack first.

- Make sure that the rack is level and stable before extending a device from the rack.

- Use caution when pressing the device rail release latches and sliding a device into or out of a rack; the slide rails can pinch your fingers.

- After a device is inserted into the rack, carefully extend the rail into a locking position, and then slide the device into the rack.

- Do not overload the AC supply branch circuit that provides power to the rack. The total rack load should not exceed 80 percent of the branch circuit rating.

- Make sure that all equipment used on the rack – including power strips and other electrical connectors – is properly grounded.

- Ensure that proper airflow is provided to devices in the rack.

- Ensure that the operating ambient temperature of the rack environment does not exceed the maximum ambient temperature specified for the equipment by the manufacturer

- Do not step on or stand on any device when servicing other devices in a rack.

Technical Support

Technical support is available both by email and online (with a browser over the web):

International

Email Support		support@aten.com
Online Support	Technical Support	http://support.aten.com
	Troubleshooting Documentation Software Updates	http://www.aten.com
Telephone Support		886-2-8692-6959

North America

Email Support		ATEN TECH	support@aten-usa.com
		ATEN NJ	sales@aten.com
Online Support	Technical Support	ATEN TECH	http://www.aten-usa.com/support
		ATEN NJ	http://support.aten.com
	Troubleshooting Documentation Software Updates	ATEN TECH	http://www.aten-usa.com
		ATEN NJ	http://www.aten.com
Telephone Support		ATEN TECH	1-888-999-ATEN
		ATEN NJ	1-732-356-1703

When you contact us, please have the following information ready beforehand:

◆ Product model number, serial number, and date of purchase.

◆ Your computer configuration, including operating system, revision level, expansion cards, and software.

◆ Any error messages displayed at the time the error occurred.

◆ The sequence of operations that led up to the error.

◆ Any other information you feel may be of help.

Troubleshooting

Administration

Problem	Resolution
After upgrading firmware, the KH1508i / KH1516i still appears to be using the old firmware version.	Your Internet browser is displaying cached web pages – not new ones. Clear your browser cache; delete all temporary Internet files and cookies, close the Internet browser, and then open a new instance of the browser.
The default network setting for the KH1508i / KH1516i is DHCP, but the network uses fixed IP addresses and doesn't have a DHCP server.	Use the local console OSD's F6 function to give the KH1508i / KH1516i a fixed IP address. See *F6 IP*, page 32, for details.

General Operation

Problem	Resolution
Erratic Operation	Press and hold the Reset Switch (see page 7) for longer than three seconds.
Mouse and/or keyboard not responding due to improper mouse and/or keyboard reset.	Unplug the cable(s) from the console port(s), then plug it back in again.
Sudden loss of network connection due to local reset of KH1508i / KH1516i.	Close your KH1508i / KH1516i connection. Wait approximately 30 seconds, and log in again.
Mouse Pointer Confusion	If you find the display of two mouse pointers (local and remote) to be confusing or annoying, you can use the *Toggle Mouse Display* function to shrink the non-functioning pointer. See page 89 for details.
Some characters that are keyed in don't display on the remote system	This is usually due to the local OS keyboard language and the remote OS keyboard language being different. Make sure that the keyboard language for both systems are the same.
Video is a little blurred, or a little overly sharp.	Change the Cat5 cable length setting. See *I/O Modules*, page 81.

The Windows Client

Problem	Resolution
won't connect to the KH1508i / KH1516i.	DirectX 8.0 or higher must be installed on your computer.
Remote mouse pointer is out of sync.	1. Use the *AutoSync* feature (see *Video Settings*, page 93), to sync the local and remote monitors.
	2. If that doesn't resolve the problem, use the *Adjust Mouse* feature (see *Mouse Synchronization*, page 114) to bring them back in sync.
	3. If the two methods described above fail to resolve the problem, use the *Toggle Mouse Display* function (see page 89).
Part of remote window is off my monitor.	Use the *AutoSync* feature (see *Video Settings*, page 93) to synchronize the local and remote monitors.
My antivirus program reports that there is a trojan after I access the KH1508i / KH1516i with my browser and then open the Windows Client Viewer.	The Windows Client Viewer uses and ActiveX plugin (windows.ocx) that some antivirus programs mistakenly see as a virus or trojan. We have tested our firmware extensively and found no evidence of a virus or trojan. You can add the plugin to your antivirus program's White List and use the Viewer safely. If you are reluctant to use the Windows Client Viewer, however, you can simply use the Java Cleint Viewer, instead.

The Java Client

For connection and operation problems, see the table below:

Problem	Resolution
Java Client won't connect to the KH1508i / KH1516i.	1. Java JRE 6 update 3 or higher must be installed on your computer.
	2. Make sure to include the correct name of the web page when you specify the KH1508i / KH1516i's IP address (see *Default Web Page Name*, page 79).
	3. Close the Java Client, reopen it, and try again.
Pressing the Windows Menu key has no effect.	Java doesn't support the Windows Menu key.
Java Client performance deteriorates.	Exit the program and start again.
National language characters do not appear.	When entering national language characters, if your local keyboard is set to a non-English national language layout, you must set the remote computer's keyboard layout to English.

The Log Server

Problem	Resolution
The Log Server program does not run.	The Log Server requires the Microsoft Jet OLEDB 4.0 driver in order to access the database. This driver is automatically installed with Windows ME, 2000, and XP. For Windows 98 and NT you will have to go to the Microsoft download site: http://www.microsoft.com/data/download.htm to retrieve the driver file: ***MDAC 2.7 RTM Refresh (2.70.9001.0)*** Since this driver is used in Windows Office Suite, an alternate method of obtaining it is to install Windows Office Suite. Once the driver file or Suite has been installed, the Log Server will run.

Panel Array Mode

Problem	Resolution
Low resolution video in Panel Array Mode.	Increase the number of panels that are displayed.
Some users only receive a partial image when multiple remote users are logged in concurrently.	The first user to invoke Panel Array Mode should set it to display a minimum of four panels.

<u>Sun Systems</u>

Problem	Resolution
Video display problems with HDB-15 interface systems (e.g. Sun Blade 1000 servers).	The display resolution should be set to 1024 x 768. Under Text Mode: 1. Go to **OK mode** and issue the following commands: setenv output-device screen:r1024x768x60 reset-all Under XWindow: 1. Open a console and issue the following command: m64config -res 1024x768x60 2. Log out. 3. Log in.
Video display problems with 13W3 interface systems (e.g. Sun Ultra servers).*	The display resolution should be set to 1024 x 768. Under Text Mode: 1. Go to **OK mode** and issue the following commands: setenv output-device screen:r1024x768x60 reset-all Under XWindow: 1. Open a console and issue the following command: ffbconfig -res 1024x768x60 2. Log out. 3. Log in.

* These solutions work for most common Sun VGA cards. If using them fails to resolve the problem, consult the Sun VGA card's manual.

Additional Mouse Synchronization Procedures

If the mouse synchronization procedures mentioned in the manual fail to resolve mouse pointer problems for particular computers, try the following:

Note: 1. These procedures are to be performed on the computers attached to the KH1508i / KH1516i's ports - not on the computer you are using to access the KH1508i / KH1516i.

2. In order for the local and remote mice to synchronize, you must use the generic mouse driver supplied with the Windows operating system. If you have a third party driver installed - such as one supplied by the mouse manufacturer - you must remove it.

---

1. Windows 2000:

    Set the mouse speed to the middle position; set the mouse acceleration to *None* (Control Panel → Mouse → Mouse Properties → Motion):
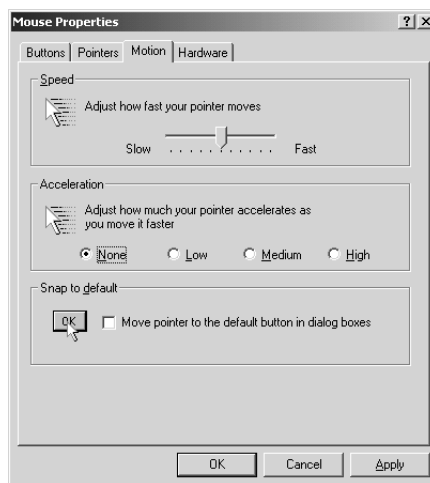
2. Windows XP / Windows Server 2003:

    Set the mouse speed to the middle position; disable *Enhance Pointer Precision* (Control Panel → Printers and Other Hardware → Mouse → Pointer Options):
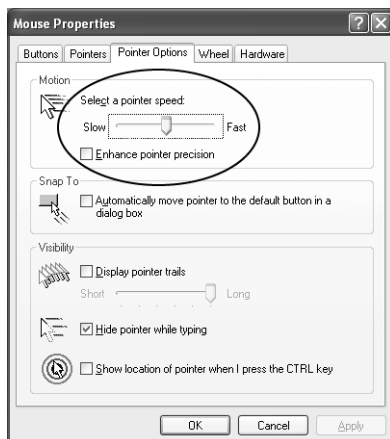
3. Windows ME / Windows 95:

   Set the mouse speed to the middle position; disable mouse acceleration (click Advanced to get the dialog box for this).

4. Windows NT / Windows 98:

   Set the mouse speed to the slowest position.

5. Sun / Linux:

   Open a terminal session and issue the following command:

   Sun: xset m 1

   Linux: xset m 0

Specifications

Function			KH1508i	KH1516i
Computer Connections	Direct		8	16
	Maximum		128 (via daisy chain)	256 (via daisy chain)
Port Selection			OSD; Hotkey; Pushbutton	
Connectors	Console Port	Keyboard	1 x 6-pin Mini-DIN Female (Purple)	
		Video	1 x HDB-15 Female (Blue)	
		Mouse	1 x 6-pin Mini-DIN Female (Green)	
	KVM Port		8 x RJ-45 Female	16 x RJ-45 Female
	Daisy Chain Ports		1 x DB-25 Male (Black)	
	Power		1 x 3-prong AC socket	
	LAN		1 x RJ-45 Female	
	PON		1 x DB-9 Male (Black)	
Switches	Reset		1 x Semi-recessed Pushbutton	
	Power		1 x Rocker	
	Port Selection		8 x Pushbutton	16 x Pushbutton
	F/W Upgrade		1 x Slide	
LEDs	On Line		8 (Green)	16 (Green)
	Selected		8 (Orange)	16 (Orange)
	Power		1 (Blue)	
	Station ID		2 x 7-segment (Orange)	
	Link		1 (Orange)	
	10 / 100Mbps		1 (Orange / Green)	
Emulation	Keyboard/Mouse		PS/2	
Video	Local		1280 x 1024 @ 75Hz (40m); 1600 x 1200 @ 60Hz (30m)	
	Remote		1280 x 1024 @ 75Hz	
Scan Interval			1–255 secs	
I/P Rating			100–240V AC; 50/60Hz	
Power Consumption			120V/12W; 230V/12W	
Environment	Operating Temp.		0–50° C	
	Storage Temp.		-20–60° C	
	Humidity		0–80% RH; Non-condensing	
Physical Properties	Housing		Metal	
	Weight		2.80 kg	
	Dimensions L x W x H		43.70 x 16.10 x 4.40 cm (19"/1U)	

Trusted Certificates

Overview

When you try to log in to the device from your browser, a Security Alert message appears to inform you that the device's certificate is not trusted, and asks if you want to proceed.
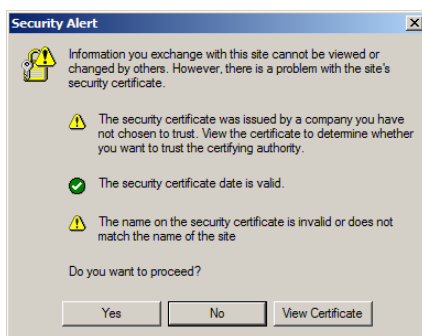
The certificate can be trusted, but the alert is triggered because the certificate's name is not found on Microsoft list of Trusted Authorities. You have two options: 1) you can ignore the warning and click **Yes** to go on; or 2) you can install the certificate and have it be recognized as trusted.

* If you are working on a computer at another location, accept the certificate for just this session by clicking **Yes**.

* If you are working at your own computer, install the certificate on your computer (see below for details). After the certificate is installed, it will be recognized as trusted.

Installing the Certificate

To install the certificate, do the following:

1. In the *Security Alert* dialog box, click **View Certificate.** The *Certificate Information* dialog box appears:
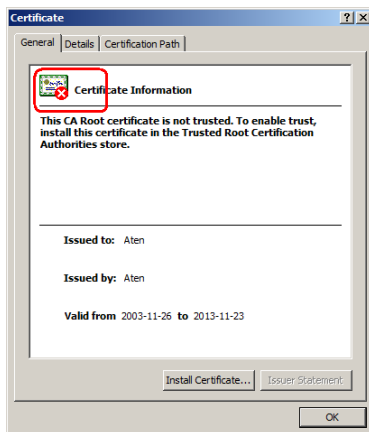
Note: There is a red and white **X** logo over the certificate to indicate that it is not trusted.

2. Click **Install Certificate**.

3. Follow the Installation Wizard to complete the installation. Unless you have a specific reason to choose otherwise, accept the default options.

4. When the Wizard presents a caution screen:
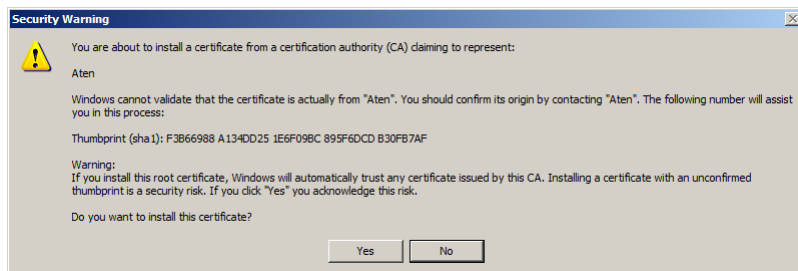
Click **Yes**.

5. Next, click **Finish** to complete the installation; then click **OK** to close the dialog box.

Certificate Trusted

The certificate is now trusted:
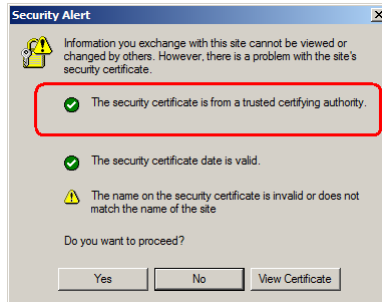
When you click *View Certificate*, you can see that the red and white **X** logo is no longer present – further indication that the certificate is trusted:
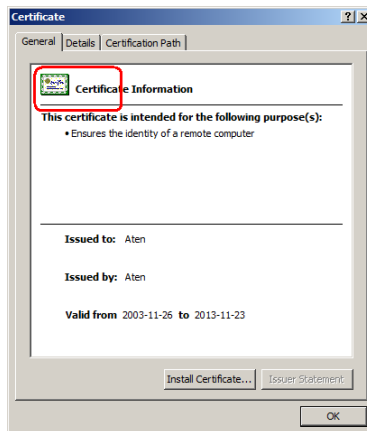
Self-Signed Private Certificates

If you wish to create your own self-signed encryption key and certificate, a free utility – openssl.exe – is available for download over the web at **www.openssl.org**. To create your private key and certificate do the following:

1. Go to the directory where you downloaded and extracted *openssl.exe* to.

2. Run openssl.exe with the following parameters:

```
openssl req –new –newkey rsa:1024 –days 3653 –nodes –x509
-keyout CA.key  -out CA.cer -config openssl.cnf
```

Note: 1. The command should be entered all on one line (i.e., do not press [Enter] until all the parameters have been keyed in).

2. If there are spaces in the input, surround the entry in quotes (e.g., "ATEN International").

To avoid having to input information during key generation the following additional parameters can be used:

/C /ST /L /O /OU /CN /emailAddress.

Examples

```
openssl req –new –newkey rsa:1024 –days 3653 –nodes –x509
-keyout CA.key  -out CA.cer -config openssl.cnf -subj
/C=yourcountry/ST=yourstateorprovince/L=yourlocationor
city/O=yourorganiztion/OU=yourorganizationalunit/
CN=yourcommonname/emailAddress=name@yourcompany.com
```

```
openssl req –new –newkey rsa:1024 –days 3653 –nodes –x509
-keyout CA.key  -out CA.cer -config openssl.cnf -subj
/C=CA/ST=BC/L=Richmond/O="ATEN International"/OU=ATEN
/CN=ATEN/emailAddress=eservice@aten.com.tw
```

Importing the Files

After the openssl.exe program completes, two files – CA.key (the private key) and CA.cer (the self-signed SSL certificate) – are created in the directory that you ran the program from. These are the files that you upload in the *Private Certificate* panel of the Security page (see page 57).

Supported Devices

The following table represents a list of supported devices that can be used on a KH1508i / KH1516i installation.

Type	
Daisy Chain Switches	KH1508; KH1516; ACS1208A; ACS1216A; CS1708A; CS1716A
PON	PN0108; PN1216
Central Control	CC1000

OSD Factory Default Settings

The factory default settings are as follows:

Setting	Default
OSD Hotkey	[Scroll Lock] [Scroll Lock]
Port ID Display	Port Number + Name
Port ID Display Duration	5 Seconds
Scan / Skip Mode	All
Scan Duration	10 Seconds
Screen Blanker	0 Minutes (disabled)
Beeper	On
Accessible Ports	F (Full) For all Users on all Ports

Administrator Login Failure

If you are unable to perform an Administrator login (because the Username and Password information has become corrupted, or you have forgotten it, for example), there is a procedure you can use to clear the login information.

Note: Performing this procedure also returns all settings to their defaults.

To clear the login information (and return all settings to their defaults), do the following:

1. Power off the KH1508i / KH1516i and remove its housing.

2. Using a jumper cap, short the jumper on the IP module (the daughter card located at the rear-left of the unit, above the mainboard), labeled *Default Password* (J3).
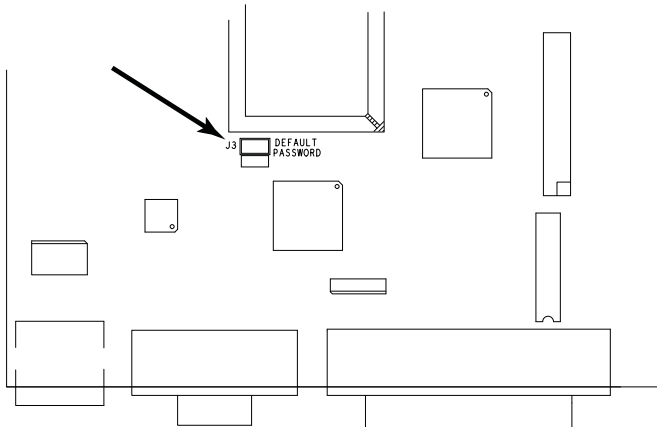
3. Power on the switch.

4. Wait a few seconds. When the front panel LEDs flash, power off the switch.

5. Remove the jumper cap from J3.

6. Close the housing and power on the KH1508i / KH1516i.

   After powering on the unit, you can use the default Username and Password (see *Overview*, page 21), to log in.

IP Module Firmware Upgrade Recovery

If a firmware upgrade procedure was interrupted due to a sudden power failure or loss of network connection, the ordinary firmware upgrade recovery procedures described in *Firmware Upgrade Recovery*, page 45, may not work for the IP module. In that case, to recover the IP module, do the following:

1. Power off the KH1508i / KH1516i and remove its housing.

2. Using a jumper cap, short the jumper on the IP module (the daughter card located at the rear-left of the unit, above the mainboard), labeled J2.
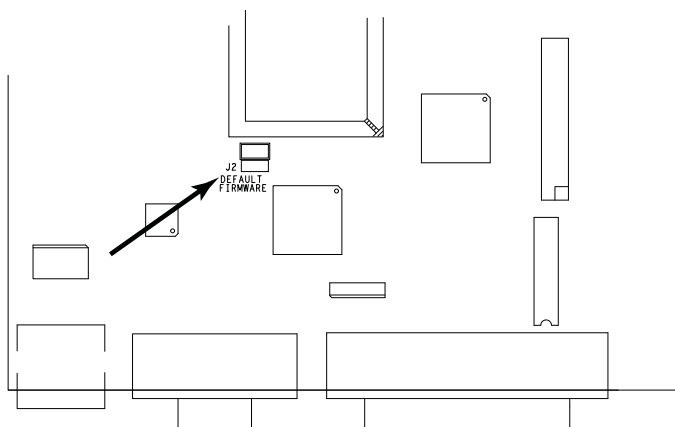
3. Power on the switch.

   The IP module will now work with the factory default firmware.

4. Do the firmware upgrade procedure again.

5. After the upgrade procedure completes: power off the switch; remove the jumper cap from J2; close the housing; and power the switch on again.

Limited Warranty

ALTUSEN warrants this product against defects in material or workmanship for a period of one (1) year from the date of purchase. If this product proves to be defective, contact ALTUSEN's support department for repair or replacement of your unit. ALTUSEN will not issue a refund. Return requests can not be processed without the original proof of purchase.

When returning the product, you must ship the product in its original packaging or packaging that gives an equal degree of protection. Include your proof of purchase in the packaging and the RMA number clearly marked on the outside of the package.

This warranty becomes invalid if the factory-supplied serial number has been removed or altered on the product.

This warranty does not cover cosmetic damage or damage due to acts of God, accident, misuse, abuse, negligence or modification of any part of the product. This warranty does not cover damage due to improper operation or maintenance, connection to improper equipment, or attempted repair by anyone other than ALTUSEN. This warranty does not cover products sold AS IS or WITH FAULTS.

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